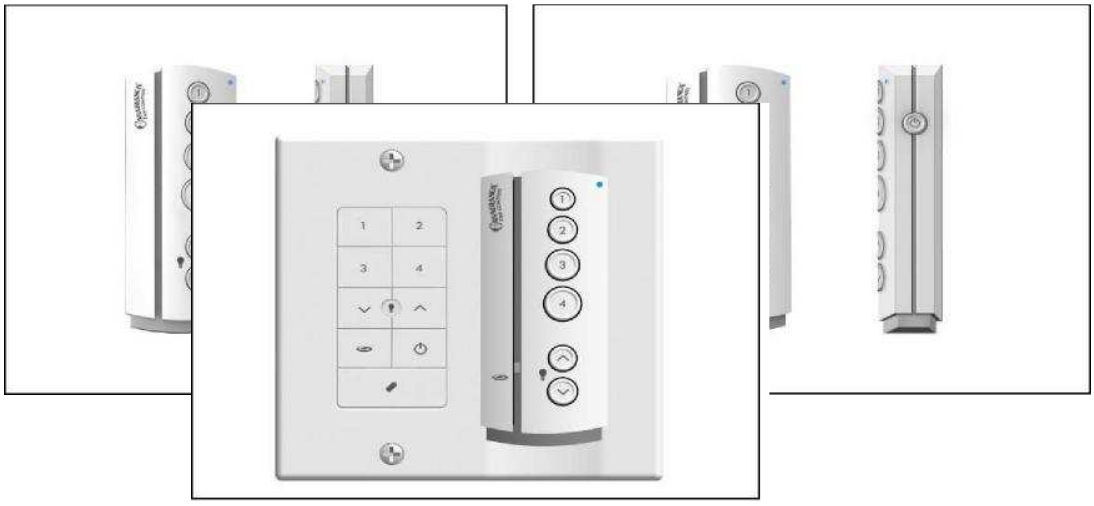

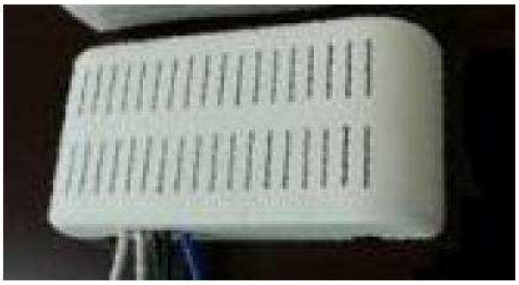

Receiver

I. General Description

		Transmitter			Receiver		
		Feature	**Housing color**	**Battery**	**Feature**	**Terminal**	
		7 buttons (fan speed OFF, 1, 2, 3, 4, light Up, Down button). Blue LED x 1.	TBD	DC 3V CR2032battery	120V/60Hz Learning code, Fan speed 1,2,3, off. Light on, off, dimming. SCP, Safe Exit, Light type auto-detection, 190w limiter (optional).	5 wires interface (L, N, Fan output, DownLight output, Common)	Hu
		7 buttons (fan speed OFF, 1, 2, 3, 4, light Up, Down button) + 1 slide switch for Reverse. Blue LED x 1.	TBD			6 wires interface (L, N, Fan output, DownLight output, Uplight output, Common)	
		9 buttons (fan speed OFF, 1, 2, 3, 4, Reverse, light Up, Down, Power button).	TBD			3 wires interface (Live in, Live out, Ground)	

III. Functional Specifications

Receiver :

1. Fan Control – A Total of 4 Speed Buttons and one OFF button on side shall be used to initiate Fan Control functions.

a) OFF Function: A Press/Release of the “Fan OFF” button on side shall turn the fan OFF.

b) Four Speed Motor Control: 1, 2, 3 & 4 represents fan speed from low to high.

2. Lighting Control – In order to reduce complexity in manufacturing and standardize to one version of firmware, an up-light detection routine is included in firmware that is run each time the power is cycled to the receiver. A very brief flash will be seen on the up-light during this time. If there IS an up-light detected then:

a) the button on the transmitter with the up arrow will serve as the dimmer and the ON/OFF button for the up-light. A momentary press will change the state of the up-light. A press and hold will begin to increase lumen output of the up-light. A release followed by another press and hold will continue to increase lumen output of the up-light up to 100%. Continuing to hold the button with the up arrow will cause the lumen output to jump from 100% to 10% and continue increasing. Full one way cycle will last 8 seconds.

b) the button on the transmitter with the down arrow will serve as the dimmer and the ON/OFF button for the down-light. A momentary press will change the state of the down-light. A press and hold will begin to decrease lumen output of the down-light. A release followed by another press and hold will decrease lumen output of the down-light to 10%. Continuing to hold the button with the down arrow will cause the lumen output of the down-light to jump from 10% to 100% and then back down. Full one way cycle will last 8 seconds.

c) If there is NOT an up-light detected then a momentary

push of either light button will change the state of the down-light. A press and hold of either light button will increase or decrease lumen level as described above

3. Transmit LED Indicator – A small blue LED shall be used to visually display Fan, Lighting Control, Safe Exit and Learning Mode commands initiated by pressing the appropriate buttons.

4. CFL and Incandescent Control Mode – The unit shall automatically detect for the presence of CFL or incandescent bulbs. Once the presence of CFL bulbs is established, the dimming functions will be disabled and the Down-light buttons will turn the lights on and off only.

5. Electrical Disturbance Feature – The lights and fan shall power up in the state they were in before the Power On Reset including lighting level and fan speed.

6. Learning Mode - This feature shall be initiated by cycling the power to the fan. For 3 minutes after cycling power to the fan the pairing operation can be implemented on the handheld remote whereby pressing both HIGH & OFF (4 & 0) Fan Speed Buttons for at least 3 seconds shall send an encoded binary bit message to a target receiver-controller. The Transmit LED Indicator shall flash 3 times and the fan shall turn at the lowest speed signifying the Learning Process is completed. The lights shall not change state during this operation.

7. Safe Exit Mode– This feature shall allow egress from a room with a time delay –OFF light source. To initiate the Safe Exit feature, the following steps shall be embedded within the handheld remote and receiver-controllers microcontrollers' memory. The Safe Exit Mode operation shall be explained for

both Incandescent and CFL based bulbs. This shall not affect fan operation.

a) Incandescent Lighting: Press of the fan OFF Button on the handheld remote for at least 3 seconds shall initiate the Safe Exit Mode.

(1) The Ceiling Fan Down-lights and the LED on the handheld remote shall flash 2 times for visual confirmation.

(2) The down-lights shall stay ON 50% brightness for 20 seconds and then begin to dim. After a total of 30 seconds has elapsed, the down-lights shall be OFF completely.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

b) CFL Lighting

(1) Press of the fan OFF button on the handheld remote for at least 3 seconds shall initiate the Safe Exit Mode. The Ceiling Fan Down-lights and the LED on the handheld remote shall flash 2 times for visual confirmation

(2) The Down-lights shall stay ON 100% brightness for 30 seconds. After 30 seconds has elapsed, the down-lights shall be completely OFF.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

B. TRANSMITTER

1. Fan Control – A Total of 4 Speed Buttons and one OFF button on side shall be used to initiate Fan Control functions.

a) OFF Function: A Press/Release of the “Fan OFF” button on side shall turn the fan OFF.

b) Four Speed Motor Control: 1, 2, 3 & 4 represents fan speed from low to high.

2. Lighting Control – In order to reduce complexity in manufacturing and standardize to one version of firmware, an up-light detection routine is included in firmware that is run each time the power is cycled to the receiver. A very brief flash will be seen on the up-light during this time. If there IS an up-light detected then:

a) the button on the transmitter with the up arrow will serve as the dimmer and the ON/OFF button for the up-light. A momentary press will change the state of the up-light. A press and hold will begin to increase lumen output of the up-light. A release followed by another press and hold will continue to increase lumen output of the up-light up to 100%. Continuing to hold the button with the up arrow will cause the lumen output to jump from 100% to 10% and continue increasing. Full one way cycle will last 8 seconds.

b) the button on the transmitter with the down arrow will serve as the dimmer and the ON/OFF button for the down-light. A momentary press will change the state of the down-light. A press and hold will begin to decrease lumen output of the down-light. A release followed by another press and hold will decrease lumen output of the down-light to 10%. Continuing to hold the button with the down arrow will cause the lumen output of the down-light to jump from 10% to 100% and then back down. Full one way cycle will last 8 seconds.

c) If there is NOT an up-light detected then a momentary push of either light button will change the state of the down-

light. A press and hold of either light button will increase or decrease lumen level as described above

3. Fan Spinning Direction Reverse - A small slide switch shall be used to activate the fan spinning direction reverse.

4. Transmit LED Indicator - A small blue LED shall be used to visually display Fan, Lighting Control, Safe Exit and Learning Mode commands initiated by pressing the appropriate buttons.

5. CFL and Incandescent Control Mode - The unit shall automatically detect for the presence of CFL or incandescent bulbs. Once the presence of CFL bulbs is established, the dimming functions will be disabled and the Up-light & Down-light buttons will turn the lights on and off only.

6. Electrical Disturbance Feature - The lights and fan shall power up in the state they were in before the Power On Reset including lighting level and fan speed.

7. Learning Mode - This feature shall be initiated by cycling the power to the fan. For 3 minutes after cycling power to the fan the pairing operation can be implemented on the handheld remote whereby pressing both HIGH & OFF (4 & 0) Fan Speed Buttons for at least 3 seconds shall send an encoded binary bit message to a target receiver-controller. The Transmit LED Indicator shall flash 3 times and the fan shall turn at the lowest speed signifying the Learning Process is completed. The lights shall not change state during this operation.

8. Safe Exit Mode– This feature shall allow egress from a room with a time delay –OFF light source. To initiate the Safe Exit feature, the following steps shall be embedded within the handheld remote and receiver-controllers microcontrollers' memory. The Safe Exit Mode operation shall be explained for both Incandescent and CFL based bulbs. This shall not affect fan operation.

a) Incandescent Lighting: Press of the fan OFF Button on the handheld remote for at least 3 seconds shall initiate the Safe Exit Mode.

(1) The Ceiling Fan Down-lights and the LED on the handheld remote shall flash 2 times for visual confirmation.

(2) The down-lights shall stay ON 50% brightness for 20 seconds and then begin to dim. After a total of 30 seconds has elapsed, the lights shall be OFF completely.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

b) CFL Lighting

(1) Press of the fan OFF button on the handheld remote for at least 3 seconds shall initiate the Safe Exit Mode. The Ceiling Fan Down-lights and the LED on the handheld remote shall flash 2 times for visual confirmation

(2) The Down-lights shall stay ON 100% brightness for 30 seconds. After 30 seconds has elapsed, the lights shall be completely OFF.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

C. Wall Control

1. Fan Control – A Total of 4 Speed Buttons and one OFF button shall be used to initiate Fan Control functions.

a) OFF Function: A Press/Release of the “Fan OFF” button shall turn the fan OFF.

b) Four Speed Motor Control: 1, 2, 3 & 4 represents fan speed from low to high.

2. Lighting Control – In order to reduce complexity in manufacturing and standardize to one version of firmware, an up-light detection routine is included in firmware that is run each time the power is cycled to the receiver. A very brief flash will be seen on the up-light during this time. If there IS an up-light detected then:

a) the button on the transmitter with the up arrow will serve as the dimmer and the ON/OFF button for the up-light. A momentary press will change the state of the up-light. A press and hold will begin to increase lumen output of the up-light. A release followed by another press and hold will continue to increase lumen output of the up-light up to 100%. Continuing to hold the button with the up arrow will cause the lumen output to jump from 100% to 10% and continue increasing. Full one way cycle will last 8 seconds.

b) the button on the transmitter with the down arrow will serve as the dimmer and the ON/OFF button for the down-light. A momentary press will change the state of the down-light. A press and hold will begin to decrease lumen output of the down-light. A release followed by another press and hold will decrease lumen output of the down-light to 10%. Continuing to hold the button with the down arrow will cause the lumen output of the down-light to jump from 10% to 100% and then back down. Full one way cycle will last 8 seconds.

c) If there is NOT an up-light detected then a momentary push of either light button will change the state of the down-

light. A press and hold of either light button will increase or decrease lumen level as described above

3. Fan Spinning Direction Reverse – A small slide switch shall be used to activate the fan spinning direction reverse.

4. CFL and Incandescent Control Mode – The unit shall automatically detect for the presence of CFL or incandescent bulbs. Once the presence of CFL bulbs is established, the dimming functions will be disabled and the Up-light & Down-light buttons will turn the lights on and off only.

5. Electrical Disturbance Feature – The lights and fan shall power up in the state they were in before the Power On Reset including lighting level and fan speed.

6. Learning Mode - This feature shall be initiated by cycling the power to the fan. For 3 minutes after cycling power to the fan the pairing operation can be implemented on the wall control whereby pressing both HIGH & OFF (4 & 0) Fan Speed Buttons for at least 3 seconds shall send an encoded binary bit message to a target receiver-controller. The Transmit LED Indicator shall flash 3 times and the fan shall turn at the lowest speed signifying the Learning Process is completed. The lights shall not change state during this operation.

7. Safe Exit Mode– This feature shall allow egress from a room with a time delay –OFF light source. To initiate the Safe Exit feature, the following steps shall be embedded within the handheld remote and receiver-controllers microcontrollers' memory. The Safe Exit Mode operation shall be explained for both Incandescent and CFL based bulbs. This shall not effect fan operation.

a) Incandescent Lighting: Press of the fan OFF Button on the wall control for at least 3 seconds shall initiate the Safe Exit Mode.

(1) The Ceiling Fan Down-lights shall flash 2 times for visual confirmation.

(2) The down-lights shall stay ON 50% brightness for 20 seconds and then begin to dim. After a total of 30 seconds has elapsed, the lights shall be OFF completely.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

b) CFL Lighting

(1) Press of the fan OFF button on the handheld remote for at least 3 seconds shall initiate the Safe Exit Mode. The Ceiling Fan Down-lights shall flash 2 times for visual confirmation

(2) The Down-lights shall stay ON 100% brightness for 30 seconds. After 30 seconds has elapsed, the lights shall be completely OFF.

(3) To cancel the Safe-Exit program while it is running, either Down-light Control Button shall be pressed for 3 seconds.

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V. RF Specifications

A. The operating RF (Radio Frequency) for the Transmitter shall be 433MHz.

B. The remote controls transmission circuit shall use a SAW (Surface Acoustic Wave) resonator or an equivalent RF Digital IC.

2. Date code: WWYY. The date code is located in a clearly visible location.

XIV. Engineering Changes

Any changes need to be requested according to the latest revision of Hunter Fan Company engineering document QA R&D-5 for ECRs.

XV. Critical Components

A. FR4 PCB or higher CTI for transmitter boards, 175 CTI or higher for control board

B. Tx and Rx Microcontrollers

C. Tactile Switches (Momentary)

D. Blue LED

E. PCB Loop Antenna (X2)

F. Battery: (3VDC - CR2032)

G. Bypass Capacitors (100nF & 10nF)

H. Tactile Switches Input Diodes

I. Zener Diode (Voltage Regulation)

J. Triac

K. Crystals

L. Slide Style Reverse Switch

XVI. Reference Documents

A. Hunter General Control Specification F4049

B. Hunter R&D-22 Electronic Fan Control NPD Procedure Rev 0

C. Hunter R&D-20 test procedure

D. Test Request Form F4086

E. Standard Audit Procedure, QA-FG

F. National Safe Transit Association Drop Test

G. ETL/UL/FCC/IC Certification Reports, to be completed by Hunter

H. Artwork, to be completed by Hunter Fan Company

I. UL and C-UL Std. 1917.

J. Hunter Fan Company PAP R&D-9

K. Hunter Fan Company Aesthetic Requirements document QA-AR

L. Hunter Fan Company QA R&D-5

M. EMC Performance, Latest IEC 61000 Standards