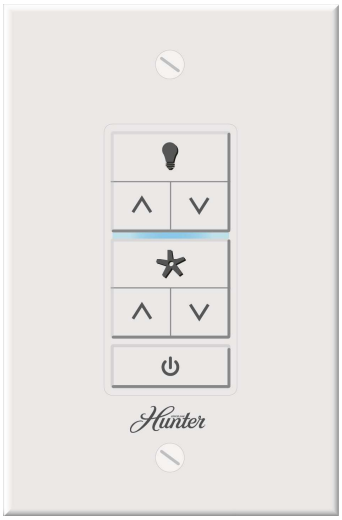
K6927

Casablanca Wall Control



K6731

Hunter Wall Control

K6300

THD Wall Control

Revision History

Revision	Date	Initiator	Description
0.1	16Aug2016	Charles Mckee	Initial Draft
0.2	23Sep2016	Charles Mckee	Updated K6927 ID

Scope: This document establishes the performance, design, test, and acceptance requirements for the above Electronic Control Module (ECM). Any deviations from this specification must be obtained, in writing using an ECR (Engineering Change Request), from the Supplier. If requesting a component change to the specification, a sample of the new component must accompany the request.

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I. General Description

The 2017 Wall Controls are 7-button remote controls intended for use with platform ECMs (generation 1.9 and 2.0). These wall controls have a mains disconnect connect switch incorporated and are intended to take the place of the fan's main power switch.

Assembly #	Description	Features	Power Source
K6927	Casablanca Wall Control	Fan Speed Control, Fan Direction Control, Light Control, Light Dimming, Pair Toggle, WiFi Reset, Main Power Disconnect Switch	(2) DC 1.5V AAA Battery
K6731	Hunter Wall Control		
K6300	THD Wall Control		

II. Benefits

The key feature of the 2017 wall control lineup is the incorporated mains disconnect switch, which allows this remote to be used in place of the fan's main power switch. The functional features of these remote controls are compatible current platform ECMs (generation 1.9 and 2.0). The WiFi Reset function adds accommodation for fans with WiFi functionality. The use of Fan Speed Increase and Decrease functions allow these remotes to be used with multiple fan speed configuration (3speed, 4sped, or BLDC). Fan direction redundancy has been added into the feature set with the Updraft and Downdraft commands in addition to the standard reverse command. New Light Maximum and Light Minimum features have been added as well.

III. Functional Specifications

A. SIMPLEconnect Handheld Remotes (Hunter and Casablanca):

1. Fan Control – There will be 3 buttons on the remote that can be used to control the functions of the fan.

a) FAN TOGGLE Function: A press/release of the FAN "✶" button will toggle the fan state between OFF and ON (last state).

b) FAN INCREASE Function: A press/release of the FAN UP "▲" button will increment the fan speed. There are some special conditions outlined as follows:

(1) If the fan is HIGH, pressing the FAN UP "▲" button will not change the fan state and it will remain HIGH.

(2) Holding the FAN UP "▲" button will change the fan state to HIGH (MAX SPEED).

c) FAN DECREASE: A press/release of the FAN DOWN "▼" button will decrement the fan speed. There are some special conditions outlined as follows:

(1) If the fan is LOW, pressing the FAN DOWN "▼" button will turn the fan OFF.

(2) IF the fan is OFF, pressing the FAN DOWN "▼" button will not change the fan state and it will remain OFF.

(3) Holding the FAN DOWN "▼" button will change the fan state to LOW (SPEED 1).

d) FAN REVERSE Function: A long hold of the FAN "✶" button on the remote will reverse the direction of the fan.

e) FAN CLOCKWISE Function: A long hold of both the FAN "✶" and FAN UP "▲" buttons will change the direction of the fan to clockwise (Updraft). If the fan is already in updraft, then there will be no change.

f) FAN COUNTER CLOCKWISE Function: A long hold of both the FAN "✶" and FAN DOWN "▼" buttons will change the direction of the fan to counterclockwise (downdraft). If the fan is already in downdraft, then there will be no change.

2. Lighting Control – There will be 3 buttons on the remote that can be used to control the functions of the light.

a) LIGHT TOGGLE Function: A press/release of the LIGHT "💡" button will toggle the light state between OFF and ON (last state).

b) LIGHT DIM INFINITE Function – A long hold of the LIGHT "💡" button will initiate the sinusoidal dimming function. There are some special conditions outlined as follows:

(1) If the light is OFF or at minimum light output, this function will illuminate the light until the button is released or maximum illumination is reached.

(2) If the light is in any state besides OFF or minimum illumination, this function will begin dimming the light. When the light reaches minimum illumination, it will begin illuminating until the button is released or the maximum light output is reached.

c) LIGHT INCREASE Function: A press/release of the LIGHT UP "▲" button will increment the light intensity. There are some special conditions outlined as follows:

(1) If the light is at full intensity, pressing the LIGHT UP "▲" button will not change the light state and it will remain and full intensity.

(2) Holding the LIGHT UP "▲" button will change the light to full intensity (LIGHT MAX).

d) LIGHT DECREASE: A press/release of the LIGHT DOWN "▼" button will decrement the light intensity. There are some special conditions outlined as follows:

(1) If the light is at its lowest intensity, pressing the FAN DOWN "▼" button will turn the light OFF.

(2) IF the light is OFF, pressing the FAN DOWN "▼" button will not change the light state and it will remain OFF.

(3) Holding the LIGHT DOWN "▼" button will change the light state to the lowest intensity (LIGHT MIN).

e) DIMMING MODE TOGGLE Function – A long hold of both the LIGHT DOWN "▼" and LIGHT UP "▲" buttons will toggle the lighting mode between ON/OFF and DIMMING.

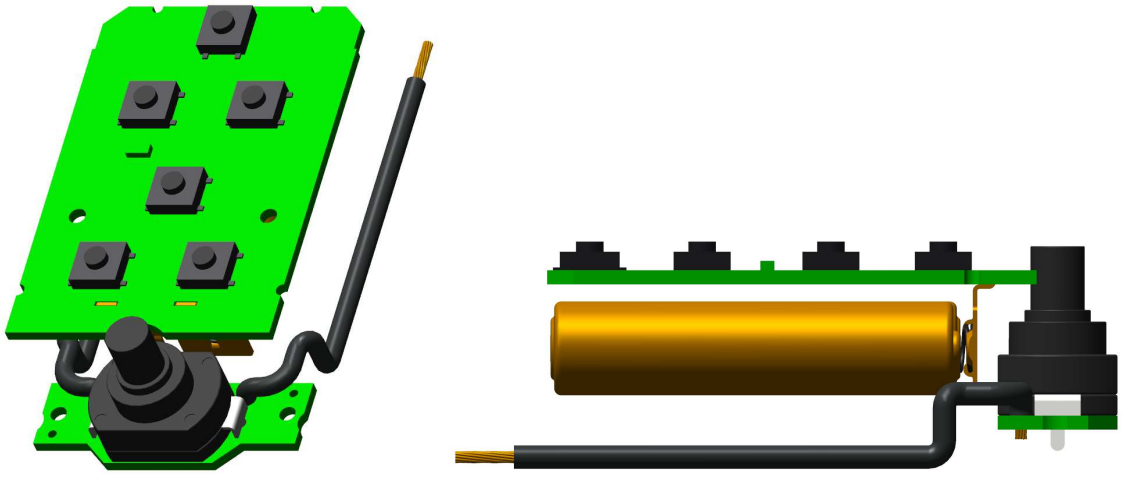
3. PAIR TOGGLE Function – A long hold of both the FAN "✶" and LIGHT "💡" button will send the PAIR TOGGLE command. If the remote and ECM were previously unpaired, they will become paired. If the remote and ECM were previously paired, they will become unpaired.

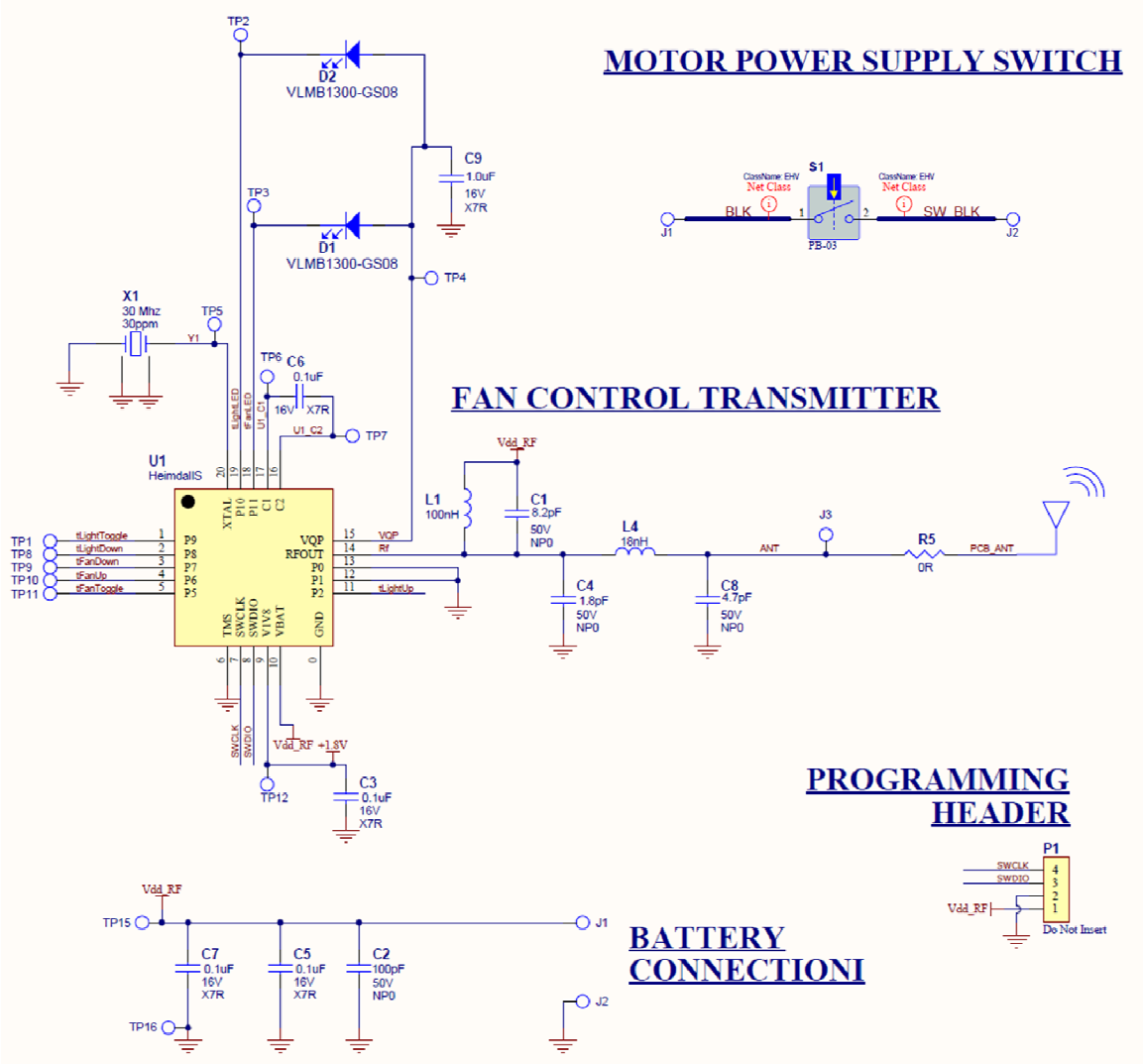
4. WiFi RESET function – A long hold of the both the FAN DOWN "▼" and FAN UP "▲" buttons will send the WiFi reset command.

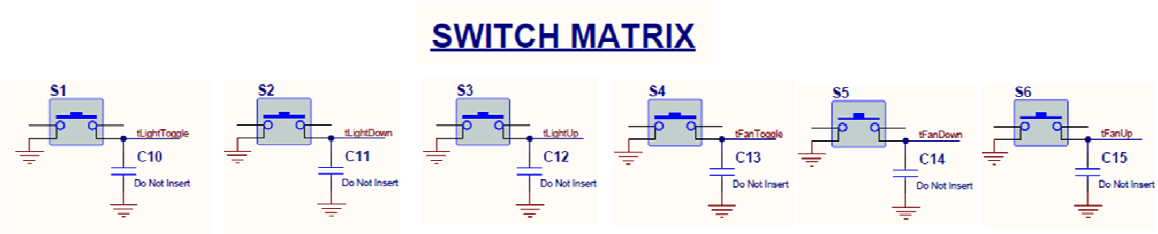
IV. Electrical Specifications

A. Power Supply: (2) DC 1.5V AAA Battery

B. PCB Assembly Design:




MOTOR POWER SUPPLY SWITCH
FAN CONTROL TRANSMITTER
PROGRAMMING HEADER
BATTERY CONNECTIONI
TP2
D2
VLMB1300-GS08
C9
1.0uF
16V
X7R
TP3
D1
VLMB1300-GS08
TP4
S1
BLK
SW_BLK
J1
J2
PB-03
X1
30 Mhz
30ppm
TP5
TP6
C6
0.1uF
16V
X7R
TP7
U1
HeimdallS
L1
100nH
C1
8.2pF
50V
NP0
L4
18nH
J3
ANT
R5
0R
PCB_ANT
C4
1.8pF
50V
NP0
C8
4.7pF
50V
NP0
Vdd_RF
Vdd_RF +1.8V
TP12
C3
0.1uF
16V
X7R
TP1
TP8
TP9
TP10
TP11
tLightToggle
tLightDown
tFanDown
tFanUp
tFanToggle
tLightUp
SWCLK
SWDIO
P1
Do Not Insert
TP15
TP16
C7
0.1uF
16V
X7R
C5
0.1uF
16V
X7R
C2
100pF
50V
NP0


SWITCH MATRIX
S1
S2
S3
S4
S5
S6
C10
C11
C12
C13
C14
C15
Do Not Insert

V. RF Specifications

A. The operating RF (Radio Frequency) for the Handheld Remote is 433MHz.

B. The following transmission range for handheld remote & wall control is:

1. Receiver located on bench in the lab >100 ft.

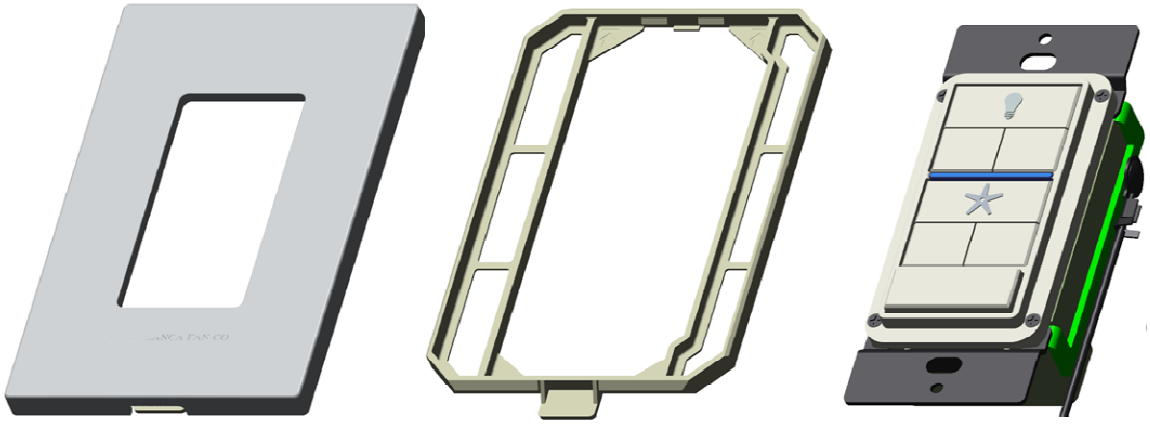
2. Receiver assembled in ceiling fan > 75 ft.

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

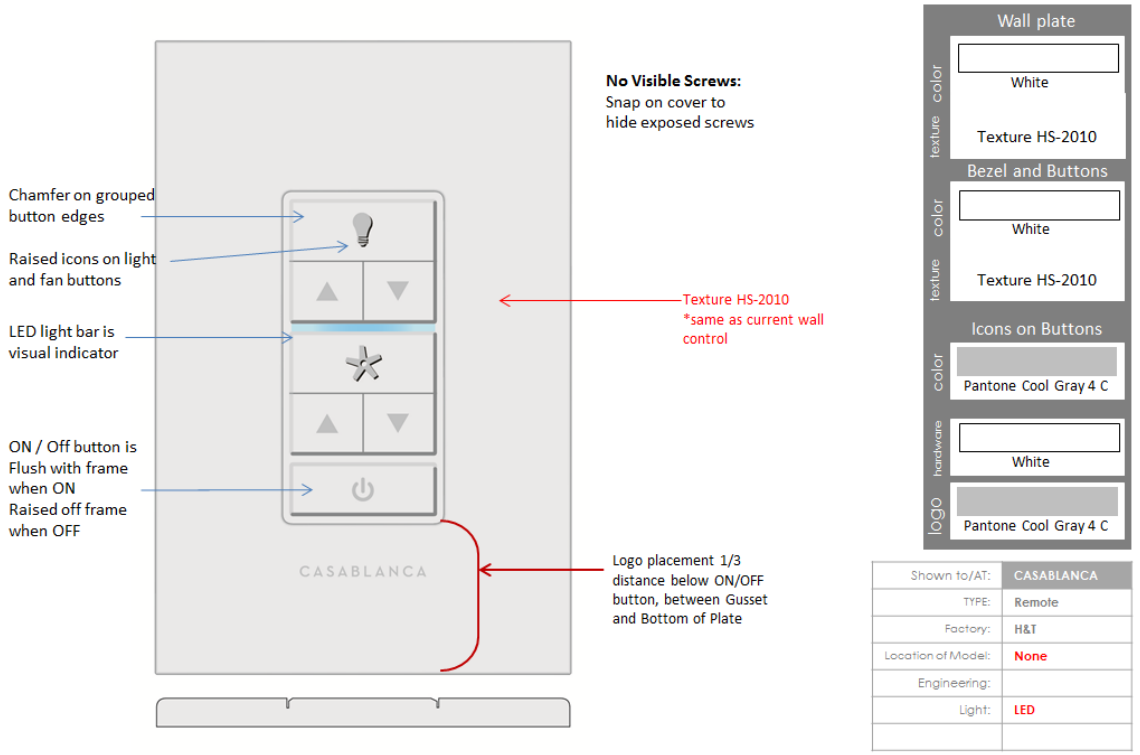
VI. Mechanical Specifications

A. K6972 Casablanca Wall Control

1. K6927 Assembly Exploded View



2. K6972 Industrial Design

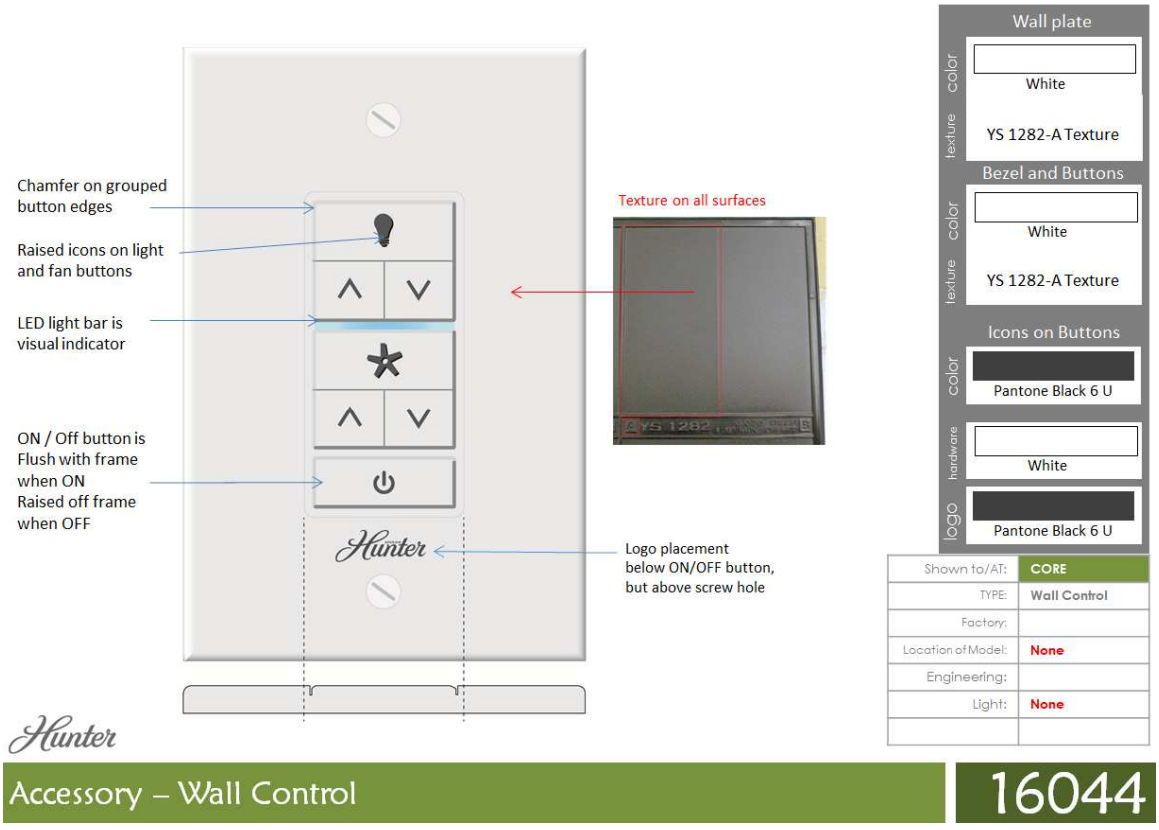


Accessory – Wall Control 16069

B. K6731 Hunter Wall Control

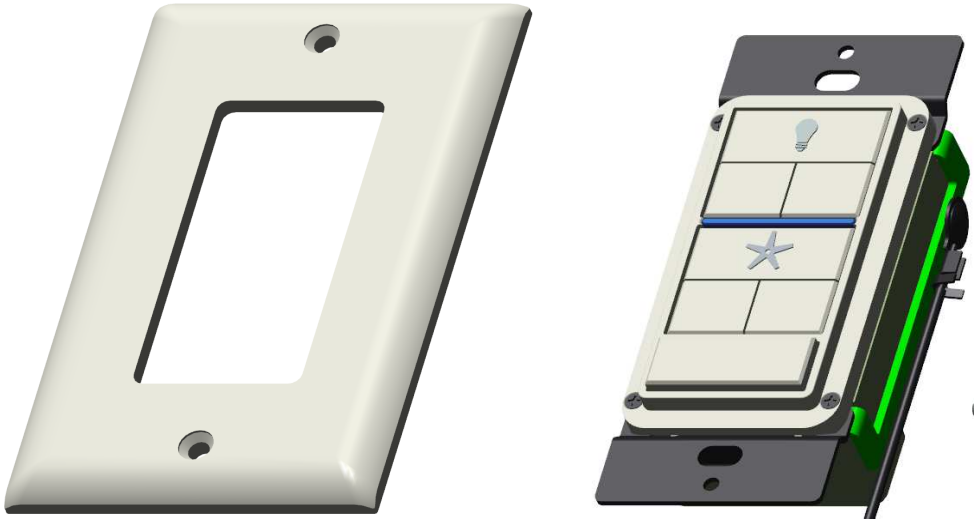
1. K6731 Assembly Exploded View

2. K6731 Industrial Design

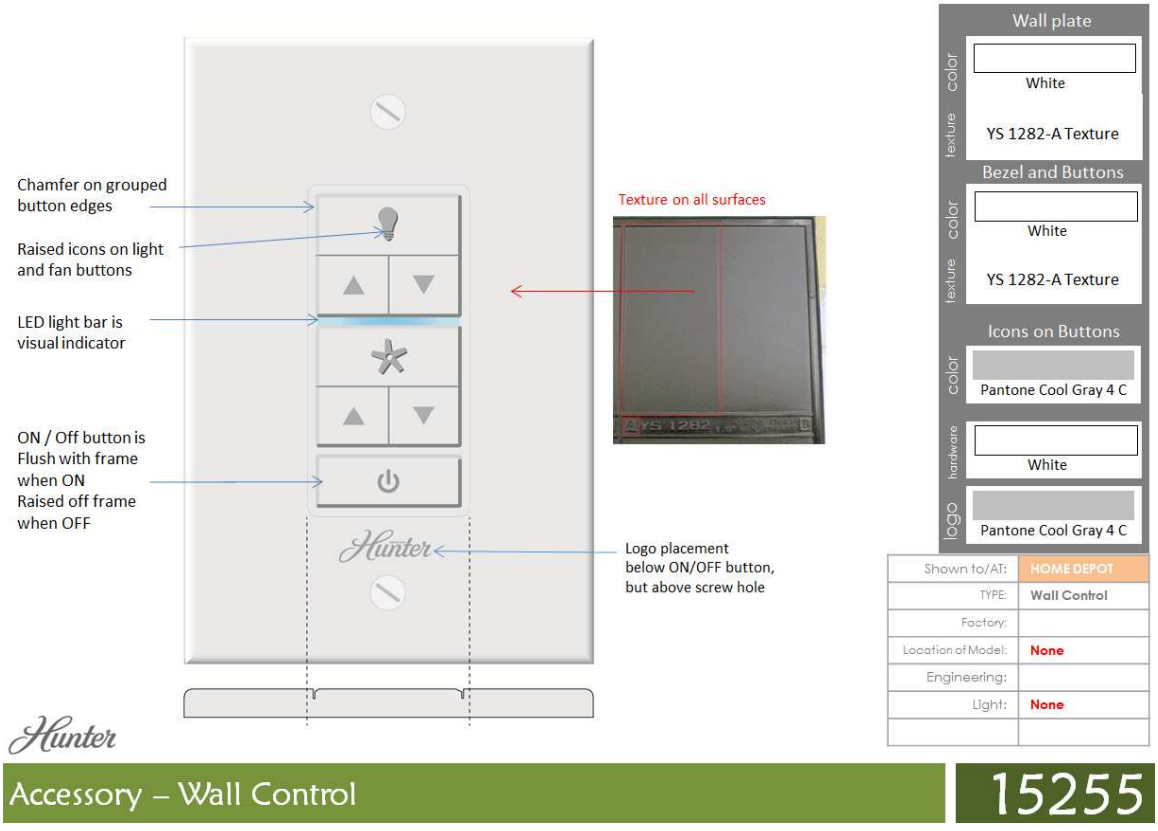


C. K6300 THD Wall Control

1. K6300 Assembly Exploded View



2. K6300 Industrial Design



VII. Regulatory Specifications

A. Units must conform to UL 991 and UL244A as required.

B. FCC part 15

C. IEC 60730-1 Automatic Electrical Controls – General Requirements

D. EMC Performance

IEC 61000-4-2, Electrostatic Discharge Immunity (ESD)
- +/- 8KV direct contact
- +/- 15KV air discharge

IEC 61000-4-3, Radiated radio-frequency electromagnetic field immunity
- Minimum test level of 2 (3V/m)
- 90-5000 MHz
- 80% AM at 1kHz Sine Wave

IEC 61000-4-6, Conducted disturbances immunity, induced by radio-frequency fields
- Minimum test level of 2 (3V/m)
- 90-5000 MHz
- 80% AM at 1kHz Sine Wave

IEC 60730-1-H.26, Electromagnetic compatibility (EMC) requirements – Immunity

VIII. Environmental Specifications

A. Operating Conditions: 0ºC to 85ºC for electrical components inside the fan or control switch housing. A 95% RH must be maintained as well. **Note:** The receiver must withstand temperatures up to 85ºC, but the remote has a requirement of 70ºC.

B. Storage: -40ºC to 70ºC for handheld remote.

C. Storage: -40ºC to 85ºC for receiver.

D. All electronic components must be rated at -40^{o} to 85^{o}C at least. All Receivers' PCBA must be Damp Rated.

IX. Quality

A. The development of this product must adhere to the latest revision of the Hunter Fan Company Control Product Approval Plan.

B. Quality Parameters: All products must be fit for function. Any deviations from the Product Specification will be considered a defect and will cause rejection of the product by Hunter Fan Company. First Article Inspection reports must be submitted to Hunter Fan for all parts & tools. A complete first article packaged unit is to be accepted by Hunter Fan Engineering & Quality and archived.

C. Product life expectancy is 3 years, based on 8,000 hours usage per year.

D. Quality Inspection: The product must comply with the requirements in the previous sections and will be checked by the Standard Audit Procedure for Controls supplied by Hunter Fan Company Quality. Hunter Fan Company Engineering and Quality may amend the procedure at any time.

E. Cosmetics: The product must meet the Hunter Fan Company Aesthetic Requirements document QA-AR.

F. Workmanship: All parts must meet the latest revision of IPC-A-610, "Acceptability of Electronic Assemblies".

G. Packaging: Hunter F4045, Packaging Construction.

H. Performance: Any deviation from these requirements is considered a critical defect and will require immediate corrective action.

I. Drawings: All piece parts used in the manufacturing of the product must meet the dimensions and the specifications outlined on their respective piece part drawings. A set of drawings must also be kept at Hunter Fan Company. All drawings must include material and applicable performance specifications for the given part. All information must be included in English and dimensioning units and tolerances must be clearly shown on the drawings.

J. Literature: All instructions, warranty cards and other literature must be legible, complete, in place and free of blemishes, tears, color mismatch, blank pages, wrinkles and contamination.

K. Reliability: The packaged product must meet the International Safe Transit Association Transportation Test.

L. Material Certification: Vendor must supply a Material Certification of Compliance for all critical components. Components cannot deviate from design without approval of Hunter Fan Company.

X. Design Test Requirements

A. Life Testing:

1. ALT (Accelerated Life Testing)

a) A sample size of 30 units must be subjected to the following test conditions for a total of 5 weeks:

(1) 5ºC / R.H.40% +/- 5% for 1 hour

(2) Ramp/transition to 85ºC / R.H. 90% for 1 hour

(3) 85 ºC / R.H. 90% +/- 5% for 10 hours

(4) Ramp/transition to 5 ºC / R.H. 40% for 1 hour

(5) Repeat steps until 5 week duration is complete.

2. HALT (Highly Accelerated Life Testing)

a) A sample size of 5 units each must be subjected to the following tests:

(1) Cold Thermal Step Stress: -20ºC (-4ºF)

(2) Hold Thermal Step Stress: >+110ºC (+230ºF)

(3) Rapid Thermal Transition: 35 Grms (Gravity Root Mean Squared)

(4) Vibration Step Stress: 45 Grms

(5) Combined Environment: 5 rapid temperature cycles from -20ºC to 110ºC combined with vibration ranging from 7 ~ 35Grms.

XI. Factory Test Requirements

According to R&D-20, section III.

XII. Warranty Period

One Year

XIII. Safety

A. Agency Requirements: All units must conform to the appropriate agency requirements for intended country of sale. Agency requirements are specific to both the product in question and the country where it is sold. Products intended for commercial or industrial use must conform to country and universal safety standards where applicable.

B. Where applicable, this product must conform to the Hunter General Control Specification F4049.

XIV. Packaging

A. K6972 Casablanca Wall Control (Pack In/ Bulk)

1. Bulk Packer per Current Standards

a) K6931 Casablanca Wall Control Assembly

(1) Paired to the ECM in Factory

B. 99195 Casablanca Wall Control (Accessory)

1. Packaging TBD

a) K6930 Casablanca Wall Control Accessory Assembly

C. K6731 Hunter Wall Control (Pack In/ Bulk)

1. Bulk Packer per Current Standards

a) K6811 Hunter Wall Control Bulk Assembly

(1) Paired to the ECM in Factory

D. 99375 Hunter Wall Control (Accessory)

1. Clamshell Packaging per Current Standards

a) K6732 Hunter Wall Control Accessory Assembly

(1) Paired to the ECM in Factory

E. 99373 THD Wall Control (Accessory)

1. Clamshell Packaging per Current Standards

a) K6672-01 THD Wall Control Assembly

(1) Paired to the ECM in Factory

F. Physical Packaging: The physical design of the internal packaging, external dimensions, and materials are to be designed by the vendor and approved by Hunter Fan Engineering. Any packaging artwork is to be supplied by Hunter Fan Company.

G. Pallet Stack Requirement: Per Marketing instructions.

H. Markings and Labels: All markings must be either permanently ink stamped, silk-screened, or provided on a UL- recognized material and labeling system preprinted or die-stamped foil type suitable for application to the surface involved, rated 60ºC.

1. Unit model label includes:

a) Hunter name, logo and address

b) Part number

c) Country of origin

d) Supplier code

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

XV. 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.

XVI. Critical Components

A. FR4 PCB or higher CTI

B. DC 1.5V AAA Batteries

C. Tactile Switches

D. Crystal

E. ASIC (AyDeeKay Heimdall Slave)

F. Battery Holder and Wire Leads

G. 120V Switch

H. LEDs

XVII. 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

N. IEC 60730-1 Automatic Electrical Controls International Standard