UMC

UM3721

ADVANCE PRODUCT DESCRIPTION

Fan Controller(Receiver)

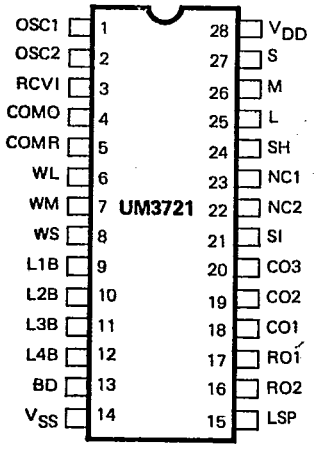
Features

- Two wind blowing modes: ordinary wind, rhythm wind
- Three kinds of wind scale in each wind blowing mode: light wind, moderate wind, strong wind
- Time setting function
- Sleep MODE function
- Fan swinging function
- R/C function (custom codes can be selected)
- Wide voltage operation
- Low power consumption

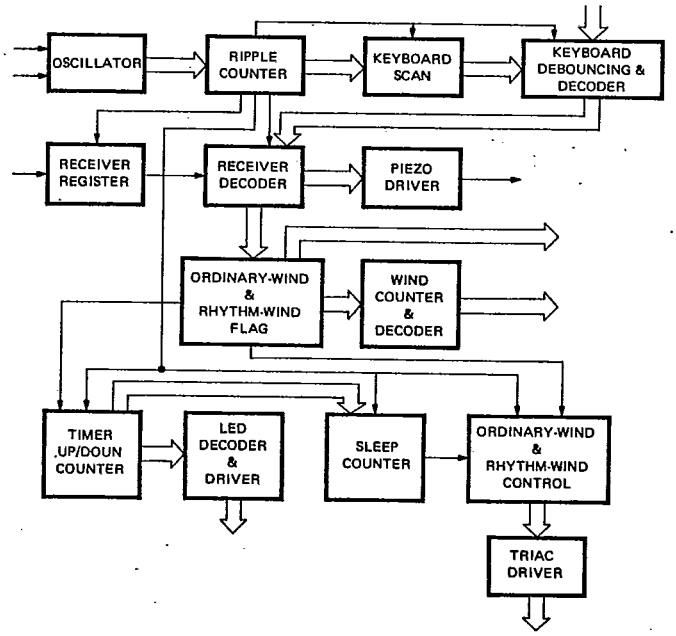
General Description

The UM3721 is a CMOS integrated circuit designed as a dedicated fan controller. There are two sources of control signals, one is the command from the keypad of control panel, the other is the series input PCM code. These signals control six kinds of operation: turn off, head swing, ordinary wind, rhythm wind, sleep mode, on time setting. When the command is received, "Bi" voice echos back to the user.

Pin Configuration



Block Diagram



Absolute Maximum Ratings*

Supply Voltage V_{DD}-V_{SS} 7.0V

Input Voltage V_{IN}-V_{SS} . . . . . −0.3 to V_{DD} V

Power Comsumption Pd 250mW

Operation Temperature Range . . . . . −20 to +75°C

Storage Temperature Range . . . . . −40 to +125°C

*Comments

Stress above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Electrical Characteristics

(T_A = 25°C, V_{DD} = 5V, unless otherwise specified.)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Operating Voltage	V_{DD}	3.0	5.0	6.0	V	
Operating Current	I_{DD}	–	2.0	3.0	mA	V_{DD} = 5.0V No load
Driving Current (WL, WM, WH, SD)	I_{OH}	–	30	–	mA	V_{OH} = 3.0V V_{DD} = 5.0V
Sinking Current (WL, WM, WH, SD)	I_{OL}	–	35	–	mA	V_{OL} = 1.0V V_{DD} = 5.0V
Sinking Current (L_{1B}, L_{2B}, L_{3B}, L_{4B}, COMC, COMN, LSP)	I_{OL}	–	20	–	mA	V_{OL} = 2.0V V_{DD} = 5.0V
Sinking Current (SH, L, M, H)	I_{OL}	–	30	–	mA	V_{OL} = 1.0V V_{DD} = 5.0V

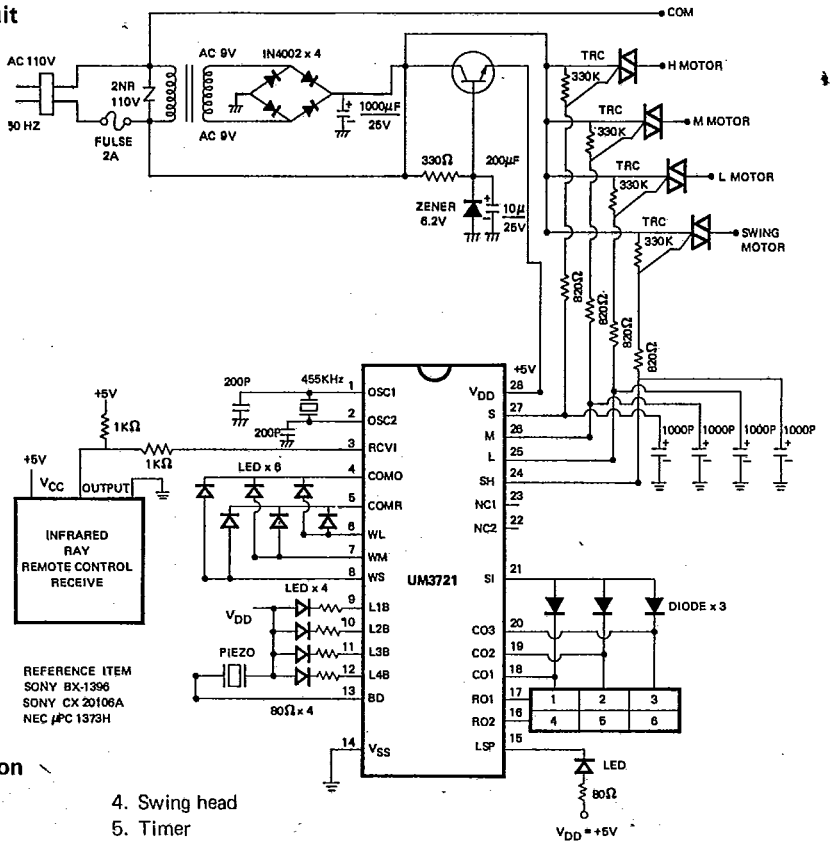
Pin Description

Pin No.	Designation	Description
1	OSC1	Oscillator input
2	OSC2	Oscillator output
3	RCVI	Receiver input with amplifier
4	COMO	Ordinary wind common
5	COMR	Rhythm wind common
6	WL	Indicator of light wind
7	WM	Indicator of moderate wind
8	WS	Indicator of strong wind
9	L1B	Indicator to represent one hour
10	L2B	Indicator to represent two hours
11	L3B	Indicator to represent three hours
12	L4B	Indicator to represent four hours

Pin Description

Pin No.	Designation	Description
13	BD	Piezo driver
14	V_{SS}	Negative power supply
15	LSP	Indicator of sleep
16	RO2	Keyboard row line 2
17	RO1	Keyboard row line 1
18	CO1	Keyboard column line 1
19	CO2	Keyboard column line 2
20	CO3	Keyboard column line 3
21	SI	Custom code input
22	NC2	—
23	NC1	—
24	SH	TRIAC driver of head-swing operation
25	L	TRIAC driver of light wind operation
26	M	TRIAC driver of moderate wind operation
27	S	TRIAC driver of strong wind operation
28	V_{DD}	Positive power supply

Application Circuit



Keyboard Function

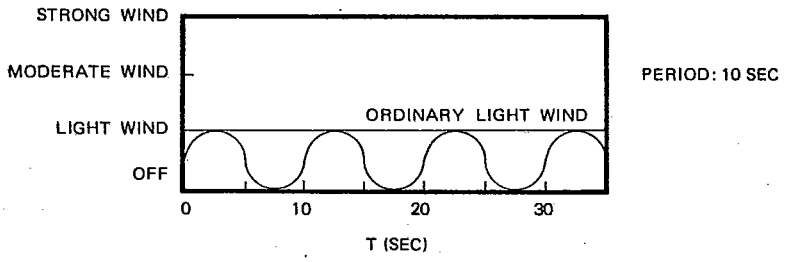
1. Ordinary wind
2. Rhythm wind
3. Sleep
4. Swing head
5. Timer
6. ON/OFF switch

Operation Note

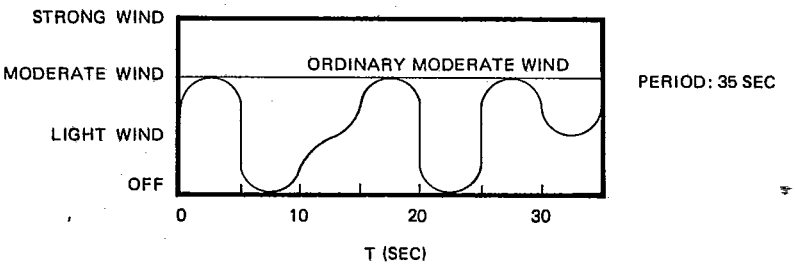
Turn On
If the button named ordinary wind, rhythm wind, or sleep mode is depressed, the fan will be turn on.

Turn off
If the turn off command is received from the remote controller, the control panel or the on-time setting is reached, the fan will be turn off.

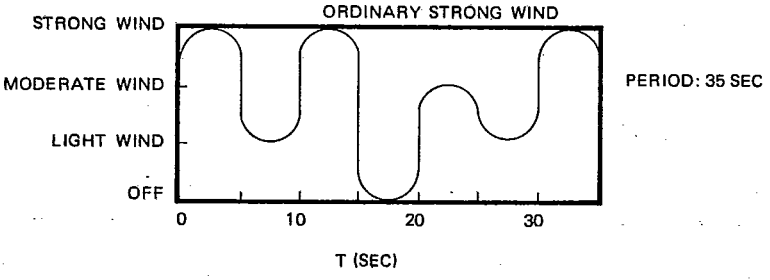
Definition of rhythm wind blowing
a: rhythm light wind (RLW)



b: rhythm moderate wind (RMW)



c: rhythm strong wind (RSW)



Definition of sleep mode behaviour
a: when the ordinary LW (OLW) or RLW is selected, the sleep mode behaviour will be as follows.

BS \ On-Time	1 Hr.	2 Hr.	3 Hr.	....	10 Hr.	....	....
OLW/RLW	10 min	20 min	30 min	....	30 min		
Passing breeze	50 min	100 min	2.5 Hr.	....	9.5 Hr.		
PB blowing	35 sec	35 sec	35 sec	....	35 sec	35 sec	35 sec
PB stop	5 sec	10 sec	15 sec	....	50 sec	60 sec	60 sec

b: when the ordinary MW (OMW) or RMW is selected, the sleep mode behaviour will be as follows.

BS \ On-Time	1 Hr.	2 Hr.	3 Hr.	....	10 Hr.	....	....
OMW/RMW	10 min	20 min	30 min	....	30 min		
OLW/RLW	10 min	20 min	30 min	....	30 min		
Passing breeze	40 min	80 min	2 Hr.	....	9 Hr.		
PB blowing	35 sec	35 sec	35 sec	....	35 sec	35 sec	35 sec
PB stop	5 sec	10 sec	15 sec	....	50 sec	60 sec	60 sec

c: when the ordinary SW (OSW) or RSW is selected, the sleep mode behaviour will be as follows

BS \ On-Time	1 Hr.	2 Hr.	3 Hr.	....	10 Hr.	....	....
OSW/RSW	10 min	20 min	30 min	....	30 min	....	....
OMW/RMW	10 min	20 min	30 min	....	30 min		
OLW/RLW	10 min	20 min	30 min	....	30 min		
Passing breeze	30 min	60 min	1.5 Hr.	....	8.5 Hr.		
PB blowing	35 sec	35 sec	35 sec	....	35 sec	35 sec	35 sec
PB stop	5 sec	10 sec	15 sec	....	50 sec	60 sec	60 sec

(5) When the command except the turn off command is received the buzzer (piezo device) will emit a voice.

(6) On-time setting:

* Four LED show the residual on-time with the binary number form. The residual on-time can't be influenced when the Beaufort scale or wind blowing style is changed.
* The on-time can be reset at anytime.
* Everytime the on-time setting key is depressed, the on-time is added by one hour. The action is cyclic. i.e. When the on-time set is over ten hours, the state will back to "one hour" condition.
* As the on-time setting key is depressed without released, the on-time will increase one hour per 0.5 second. The action is cyclic.