

## *Ceiling Type Air Conditioner For Precision Temperature & Humidity Controls*



With intelligent temp. & humidity controller  
adjustable temperature control range 20 - 26°C  
humidity 40 - 65%RH

### R22

°C +  
%RH



**SUH Series**

Cooling capacity range 3.7 - 11.2 kW

*New innnovation of HVAC system, cost effective and accuracy.*

# SUH Series

## ENERCOV air conditioner for humidity control

SUH series, Air conditioner system for special function room application to maintain environment such as temperature and humidity at desirably range. The indoor unit is ceiling concealed type installation. Matching to high performance and heavy duty condensing unit SPA series for widely applications.

## Micro-processor controls

Intelligent temperature & humidity controller with completed FUZZY algorithm provides very precise of room parameters. It consist of display unit, temperature & relative humidity sensors, controller and fan motor speed control. LED display on the display unit shows actual temperature. It also can switch displaying to room humidity by pressing DISP/SET HUM button.

## Display unit functions

### 7 segment display



When press DISP/SET HUM button, °C LED light is on, means room temperature displaying.



When press DISP/SET HUM button, %rh LED light is on, means room humidity displaying (10 sec).

### DISPLAY

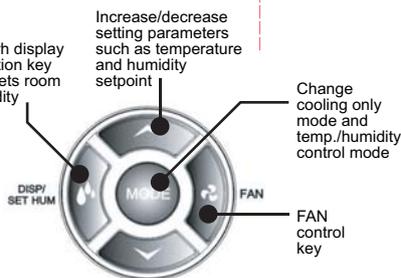
- °C  
Room temperature displaying lamp
- %rh  
Room humidity displaying lamp
- Aux HEATER  
Auxilliary heater operating lamp

### MODE

- Mode cooling only
- Mode temperature & humidity control



Dim : 110Wx65Hx20D mm.



Function keys



FCU

Intelligent temp & humidity controller w/fan speed control board



Compressor & system devices

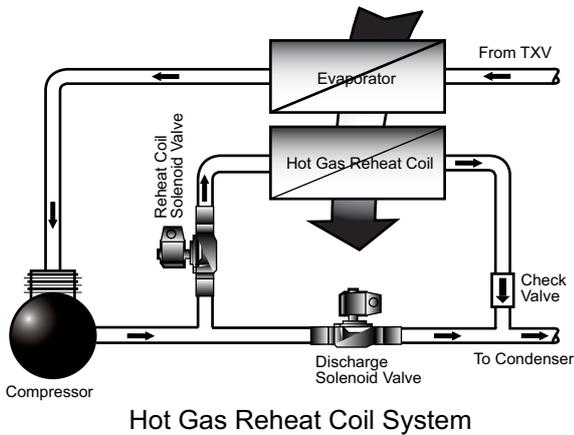


Room temperature & humidity sensor

On/Off button

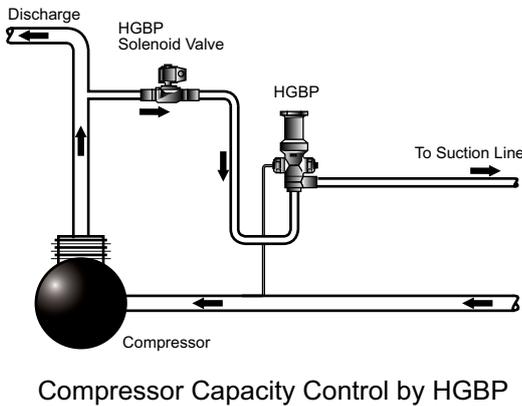
## Control Functions

1. Room temp. & humidity are controlled by FUZZY adaptive algorithm.
2. Cooling mode and temperature/humidity control mode selectable
3. Aux HEATER LED lights up means hot gas reheat coil energized.
4. Room temperature and humidity display selectable. These 2 parameters can swap display by automatically.
5. Supply air fan can config to vary speed to maintain room condition by automatically.
6. HGPB solenoid valve is operated in term of PWM (pulse width modulating) function.
7. Room sensors faulty alarm codes.
8. Condensing fan is adjust speed to control refrigerant discharge pressure.
9. Room temperature & humidity sensors calibration is also available.
10. Proportional, integral gain and calculation time are configurable.



## Hot gas reheat coil

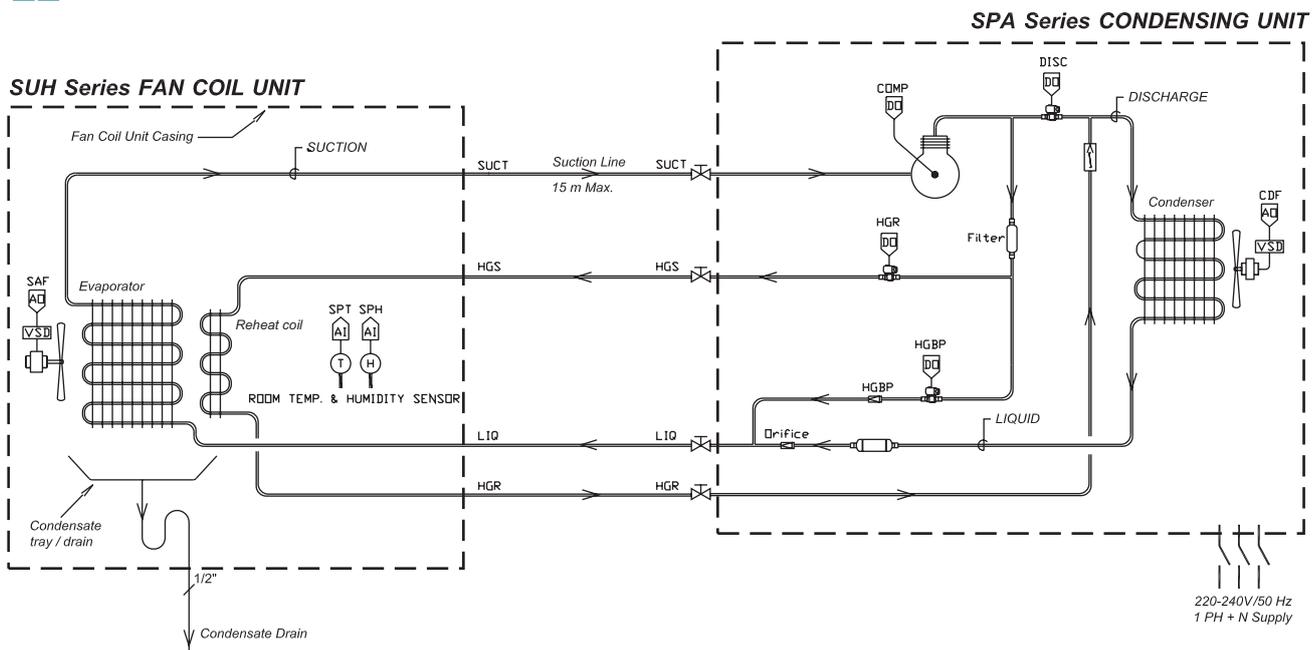
When compressor is running to reduce room sensible and latent heat in term of temperature and humidity respectively. In case of high latent heat and low sensible heat, the compressor still run although room temperature is reduced below setpoint to keep dehumidifying process. The system requires reheat process to compensate too much cooling supplied. Generally, electric heaters are applied to this function which is very high power consumption for re-heating. ENERCOV provides hot gas reheat coil instead of electric heater position. By using the waste heat energy from discharge superheat gas approximately 80-90°C and controls hot gas flows through reheat coil by solenoid valve. The refrigerant sub-cool also increases whilst hot gas reheat is operated. Energy saving over 40% is guaranteed.



## Compressor capacity control system

Generally, the compressor will be controlled to start and stop to maintain room temperature and humidity. During stopping, room humidity fluctuates due to the latent heat of room condition. Compressor can be re-started after 1-3 minutes to prevent short cycling. ENERCOV SUH series develops a new improved technology to unload compressor during low load condition down to 50% of compressor capacity by Hot Gas Bypass (HGBP) Valve. The HGBP valve bypasses discharge gas of refrigerant back to suction line at appropriated amount and related to actual room heat load. So, the system is regulated refrigerant quantity flows to evaporator based on room heat load requirement. We can guaranty room temperature error within  $\pm 1.0^{\circ}\text{C}$  and humidity  $\pm 10\% \text{RH}$  controlled range possibility.

## Refrigerant diagram



# SUH Series



Indoor Unit



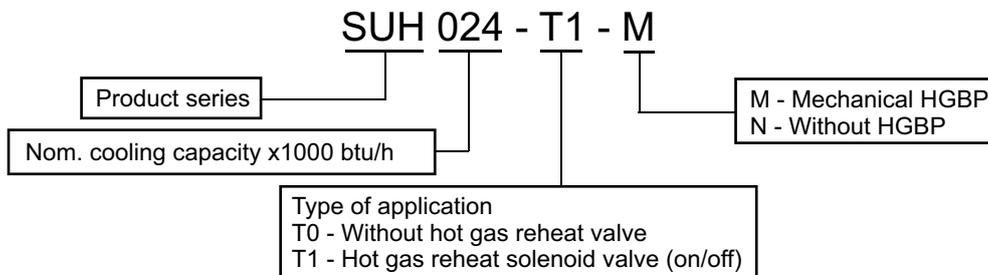
Outdoor Unit

## Specification, floor/ceiling mount

Model	Indoor unit	SUH012	SUH018	SUH024	SUH032	SUH036
	Outdoor unit	SPA012-T2	SPA018-T2	SPA024-T2	SPA032-T2	SPA036-T2
Nominal cooling capacity	kW	3.70	5.60	7.50	9.70	11.20
	Btu/hr	12,624	19,107	25,590	33,096	38,214
<b>Indoor Unit</b>						
Reheat coil capacity	kW	3.00	4.50	6.00	8.00	9.00
Motor current	Amp	0.28	0.55	0.7	0.7	1.6
Nominal air flow Rate (Hi Speed)	CFM	400	800	1200	1600	1800
Control type	LED microprocessor-wired control/temp. & humidity display					
Dimension HxWxD	mm	620x978x200	620x1278x245	620x1778x245	620x1778x245	620x1778x245
Net weight	kg	39	52	74	81	84
<b>Outdoor Unit</b>						
Compressor Type	-	Rotary	Hermetic Scroll			
Compressor running amps	Amp	5.1	9.6	14.3	17.1	7.2
Comp power supply	V/PH/Hz	-	220/1/50			380/3/50
Fan Type	-	Propeller Direct Drive				
No. of fan	-	1				
Fan motor supply	V/PH/Hz	-	220/1/50			
Motor current	Amp	0.29	0.72	0.72	0.72	1.44
Dimension HxWxD	mm	750x540x300	915x650x400	915x650x400	915x750x400	1170x940x370
Pipe conn. Liquid,Suction	inch	1/4,1/2	3/8,5/8	3/8,5/8	3/8,5/8	3/8,3/4
Pipe conn. Reheat Coil (in & out)	inch	3/8	1/2	1/2	1/2	5/8
Net weight	kg	52	67	75	93	112

Note : - Total heat removal based on 26.7 deg C, 50%RH air on cooling coil and 35 deg C outdoor air temperature.  
 - All specifications are subject to change without prior notice.

## Product Nomenclature



**ENERCOV**  
 Ultimate Comfortable



**Enercov (Thailand) Co.,Ltd.**  
 48/259 Moo 1, Ramkhamhaeng Road,  
 Sapanjung, Bangkok, Thailand 10240  
 Phone : (662) 372-3004-6  
 Fax : (662) 372-3007

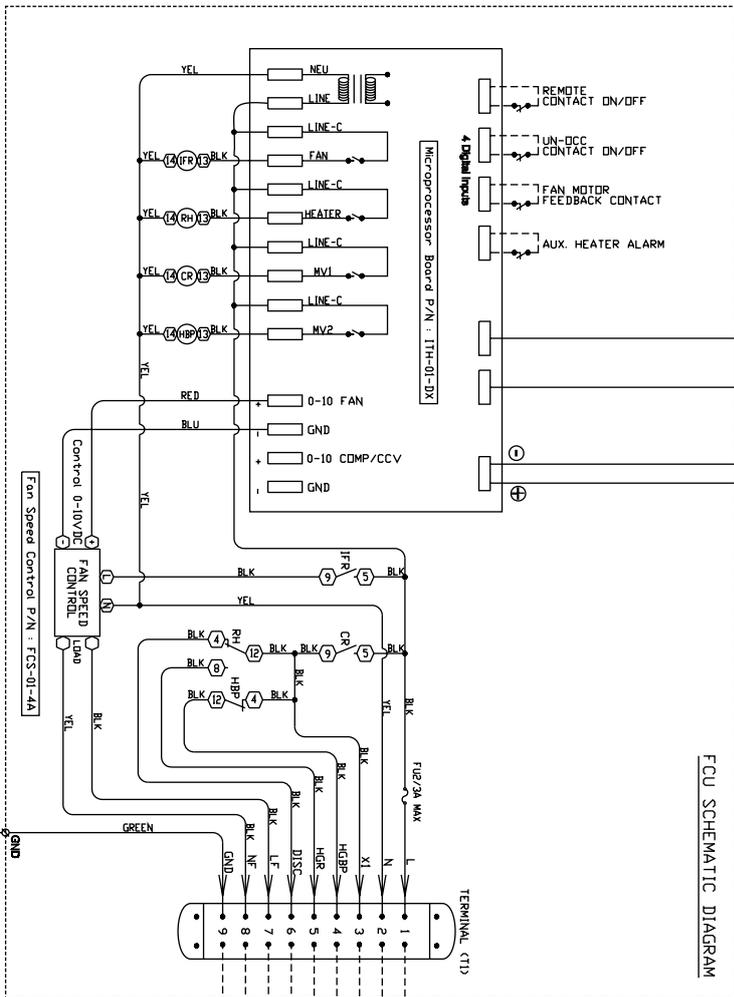
[www.enercov.com](http://www.enercov.com)

# Electrical Diagram

Electrical schematic wiring diagram (1 phase)

SUH012-032

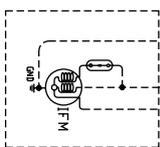
FCU CONTROL BOX



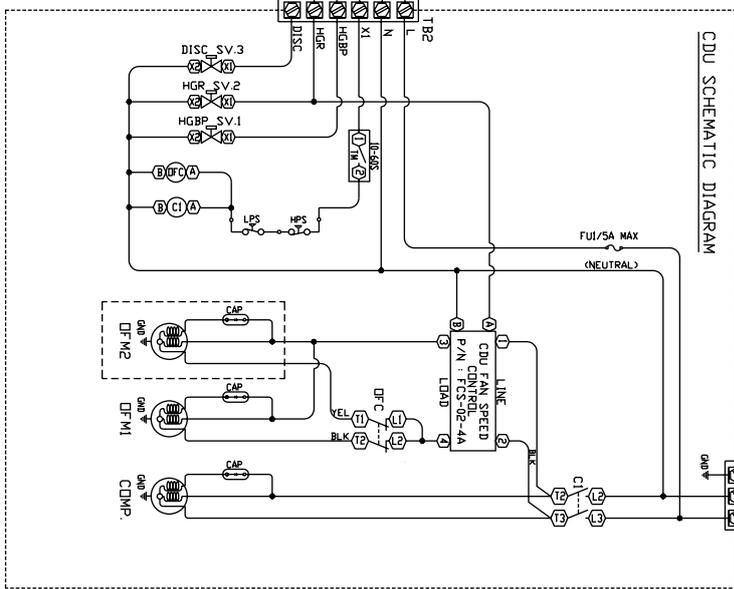
BASE UNIT P/N : IFH-01-DX

FCU SCHEMATIC DIAGRAM

FCU



CDU CONTROL BOX



CDU SCHEMATIC DIAGRAM

LEGEND

- COMP. COMPRESSOR MOTOR
- C1 COMPRESSOR CONTACTOR
- CR COMPRESSOR RELAY
- CAP CAPACITOR
- DGT DISCHARGE GAS THERMOSTAT
- FCB FAN CIRCUIT BREAKER
- MOD MODULATING VALVE
- FU CONTROL FUSE
- GRD GROUND
- HPS HIGH PRESSURE SWITCH
- HBP HOT GAS BYPASS RELAY
- HGBP HOT GAS BYPASS
- HGR HOT GAS REHEAT
- IFM INDOOR FAN MOTOR
- IFR INDOOR FAN RELAY
- IFC INDOOR FAN CONTACTOR
- IP INTERNAL PROTECTOR
- IP(DFM1,2) INT. PROTECTOR OUT DOOR FAN MOTOR
- LLS 1 LIQUID LINE SOLENOID
- LPS LOW PRESSURE SWITCH
- OFC OUTDOOR FAN CONTACTOR
- DFM OUTDOOR FAN MOTOR
- DPS OIL PRESSURE SWITCH
- R1 RELAY
- RH REHEAT COIL RELAY
- SV SOLENOID VALVE
- TRAN TRANSFORMER
- TB TERMINAL BLOCK (TB)
- TC 1,2 THERMOSTAT COOLING
- TM TIMER
- SPLICE SPLICE
- COMPONENT CONNECTIONS MARKED
- TERMINAL BLOCK CONNECTIONS (TB)
- FIELD POWER WIRING
- FIELD CONTROL WIRING

# Electrical Diagram

Electrical schematic wiring diagram (3 phase)

SUH036 only

