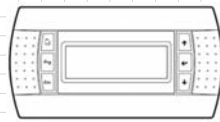




New technologies of precision temperature & humidity controls



*Preprogrammed
Microprocessor Controller*



Or Programmable Controller

Big BENEFITS ;

- Energy saving > 30%**
- Less equipments require**
- Lower investment cost**
- Temp. & Humidity very accurate**
- Added safety**
- No need for heating elements**



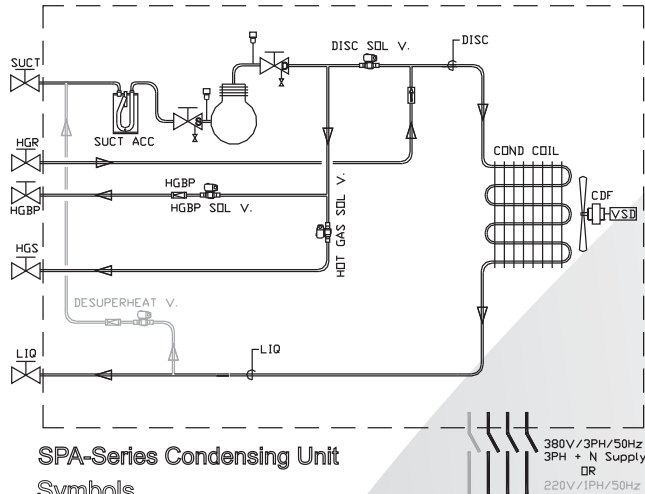
SPA-Series

Climate Controls Condensing Unit

Air cooled condenser for cooling, heating & dehumidifying process.

Direct Expansion for Heat Recovery Application

Refrigerant Diagram



SPA-Series Condensing Unit

Symbols

	Compressor		Temp. sensing bulb
	Filter drier		Solenoid valve
	Compressor discharge valve		Expansion valve
	Compressor suction valve		Accumulator
	Pressure transducer		Service valve
	Hot gas bypass regulator		Check valve
			3 way solenoid valve

- High quality casing, compressor, hot gas modulating valve, HGBP, de-superheat TXV and suction accumulator for heat recovery system application.

- High operating performance
- Compressor oil-free maintenance
- High system application flexibility
- Energy saving

FEATURES & BENEFITS

System components

ENERCOV SPA series are designed and built to new innovation. SPA series are consists of the scroll compressor providing with hot gas bypass (HGBP) to regulate compressor capacity controls, discharge and hot gas reheat solenoid valve to energize hot gas reheat coil operation during heating function, suction gas cooled injection valve (option) and suction accumulator to improve very efficient of cooling/heating/humidifying/dehumidifying technology and provides trouble-free operation. The cabinets are constructed of heavy zinc coated galvanized steel. Chemically cleaned and phosphatized to bond the specially formulated corrosion inhibiting, polyester powder coating. All materials are protected to ensure long life, good looks, and corrosion resistance.

Reliable operation

Building owners will appreciate the high unit EERs (Energy Efficiency Ratios) offered by the SPA-series. These units provide greater efficiency than similar units in the marketplace, which translates into year-round operating savings.

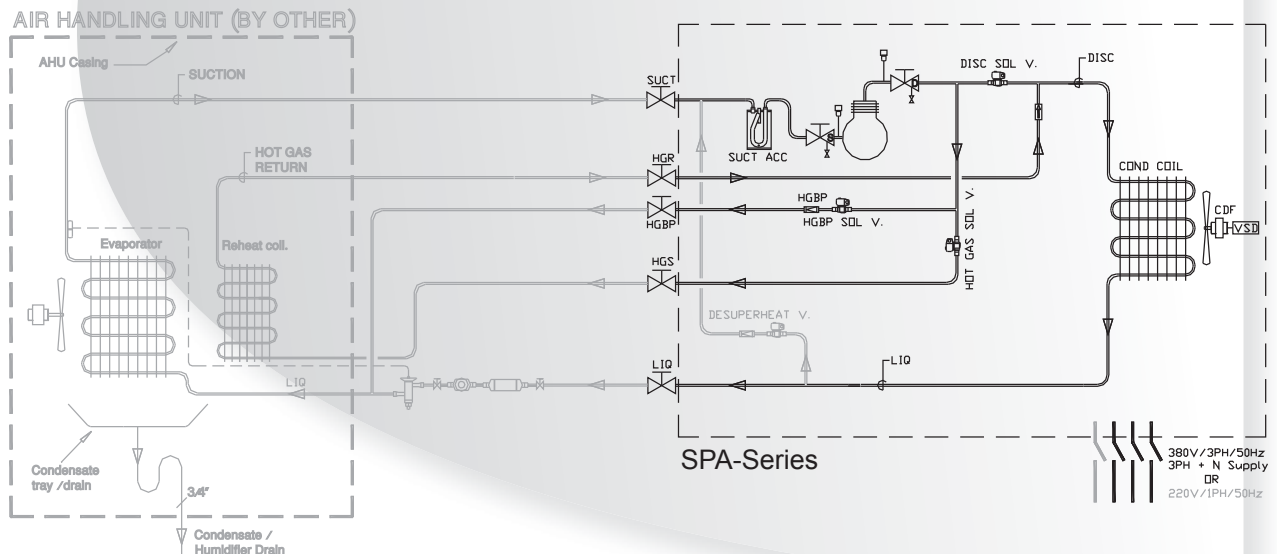
SPA-Series Refrigeration Devices/Application

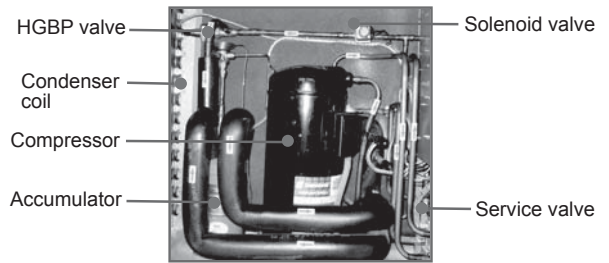
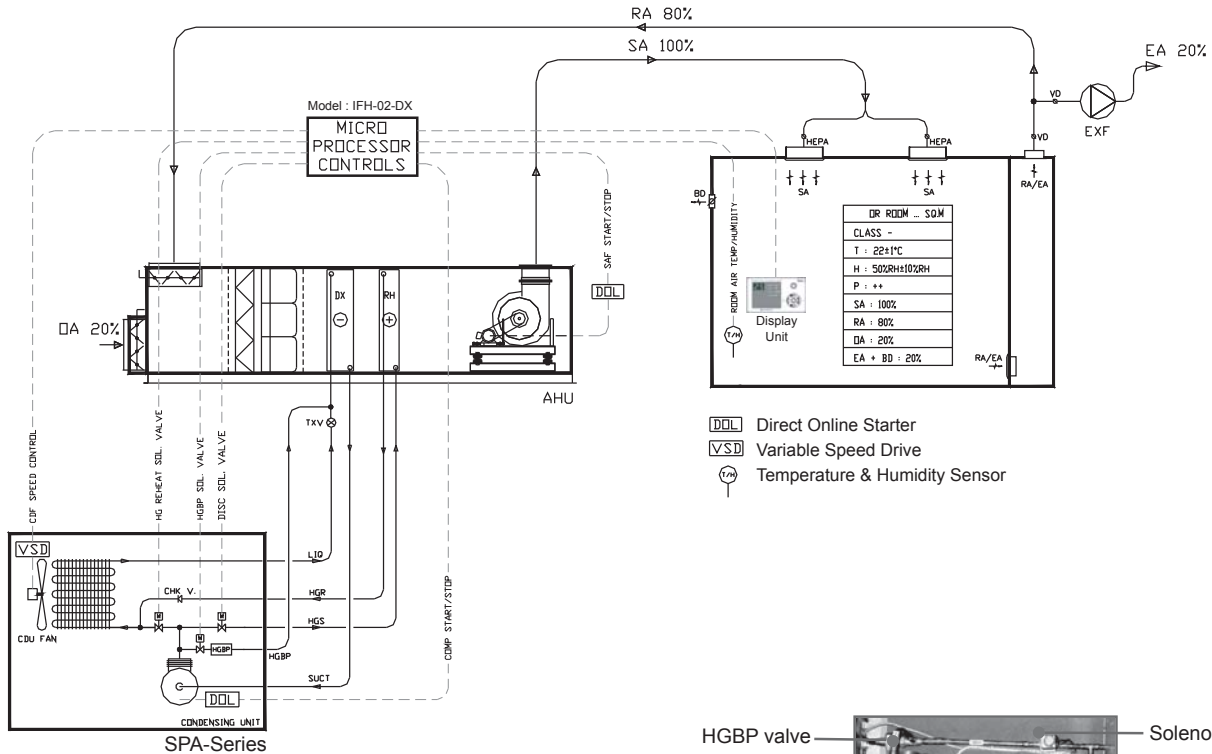
Hot gas bypass valve is installed within condensing unit to bypass refrigerant to evaporator after TXV. HGBP is applied for normal application to reduce compressor capacity during partial load.

On/off function of 2 solenoid valves are applied to energize hot gas reheat coil during REHEAT function of humidity controls. Solenoid valves are operated as heating and dehumidifying function. The heating coil of this type can operate either on/off nor pulse width modulating (PWM) feature.

Suction gas cool (SGC) injection valve will maintain refrigerant suction temperature not higher than 18 deg C to prevent compressor overheat problem.

Condenser fan speed control is varied to control high side pressure of discharge refrigerant. This feature can apply to very low ambient temperature at minimum -10°C.





High quality devices

General Specification

Outdoor Unit Model		Unit	SPA012	SPA018	SPA024	SPA032	SPA036
Nominal cooling capacity		kW	3.66	5.57	7.33	9.67	11.13
		Btu/hr	12,500	19,000	25,000	33,000	38,000
Power source		V/Ph/Hz	220/1/50				380/3/50
Compressor running amps		Amp	5.1	9.6	14.3	17.1	7.2
Compressor RLA		Amps	11.4	14.8	17.3	23.1	10.8
Compressor type		-	Rotary	Hermetic Scroll			
Capacity control device		-	Hot gas bypass valve (HGBP)				
HGBP solenoid valve control type		-	On/Off W/Pulse Width Modulating (PWM function)				
Capacity range		-	50% - 100%				
Suction accumulator		-	Yes (Option)				
Oil separator		-	Yes (Option)				
Hot gas reheat valve		-	On/Off solenoid valve 2 nos.				
Controls system		-					
- Standard	Model	-	Enercov's "IFH-02-DX"				
	Type	-	Microprocessor based with FUZZY algorithm				
	Sensor	-	Space temp. & humidity sensor				
	Display	-	2 digits 7 segments LED with function key & on/off button (wall mount)				
- Option controls system		-	Programmable DDC w/LCD display & BAS interfacing				
CDU Fan	Type	-	Propeller Fan Direct Drive				
	Fan Control		Head pressure control W/fan speed control module				
	Motor current	Amp	0.29	0.72	0.72	1.44	
	Volt/Ph/Hz	-	220V/1PH/50Hz				
	No. of fan	-	1				
Dimension	HxWxD	mm	750x540x300	915x650x400	915x650x400	915x750x400	1170x940x370
Approx. net weight		kg	52	67	75	93	112

- Note : □ - CU pipe connections are recommended for <50 m distance between CDU and AHU (see last page).
 □ - Cooling capacity based on saturated condensing temperature (SCT) 54.4°C and saturated suction temperature (SST) 7.2°C.

SPA Series

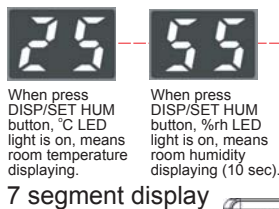
ENERCOV's "IFH-02-DX" intelligent T&H controller

ENERCOV's IFH series, new innovation of humidity controls system. It is applied to DX air cooled condensing unit to control room temperature and humidity at desirably range without electric heater elements. IFH series provide fully equipments such as micro-processor controller (p/n : ITH-02-DX), display unit (p/n : DT-05HE), room temperature & humidity sensor (p/n : THS-01). ENERCOV's temperature and humidity control model "IFH-02-DX" also provide voltage free contact to start/stop supply air fan of air handling unit including remote start/stop control routine as well.

FUZZY algorithm

Intelligent temperature & humidity controller with completed FUZZY algorithm provides very precise of room temperature & humidity. FUZZY algorithm adjusts compressor capacity control (HGBP) and hot gas reheat valve to maintain sensible & latent capacity follows room load condition by automatically. That mean we can control room temperature & humidity without additional high power consumption device such as electric heater. Display unit can display room temperature & relative humidity as per configure by user. The user also can adjust room condition very easily.

Display unit functions

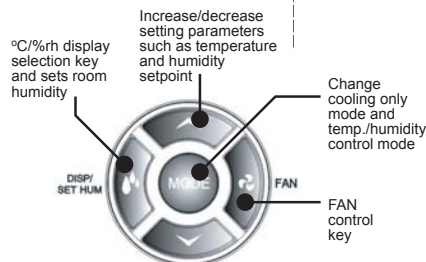
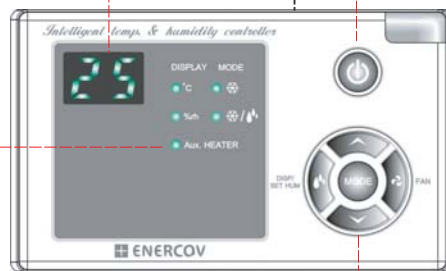


DISPLAY

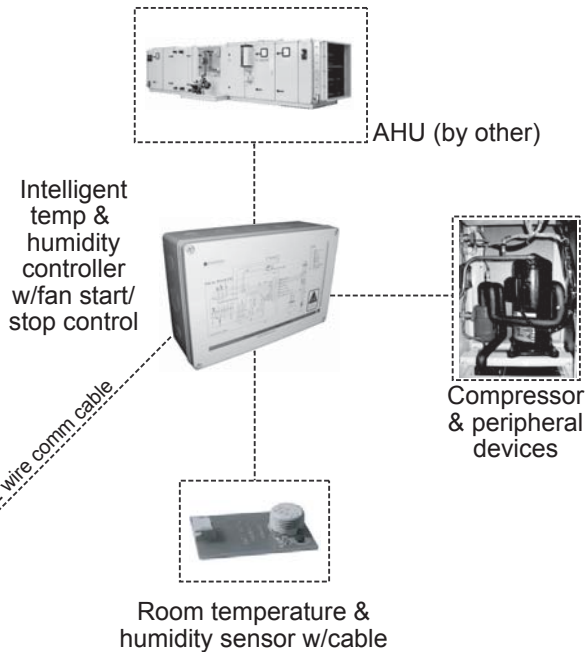
- °C
Room temperature displaying lamp
- %rh
Room humidity displaying lamp
- Aux HEATER
Auxillary heater operating lamp

MODE

- Mode cooling only
- Mode temperature & humidity control



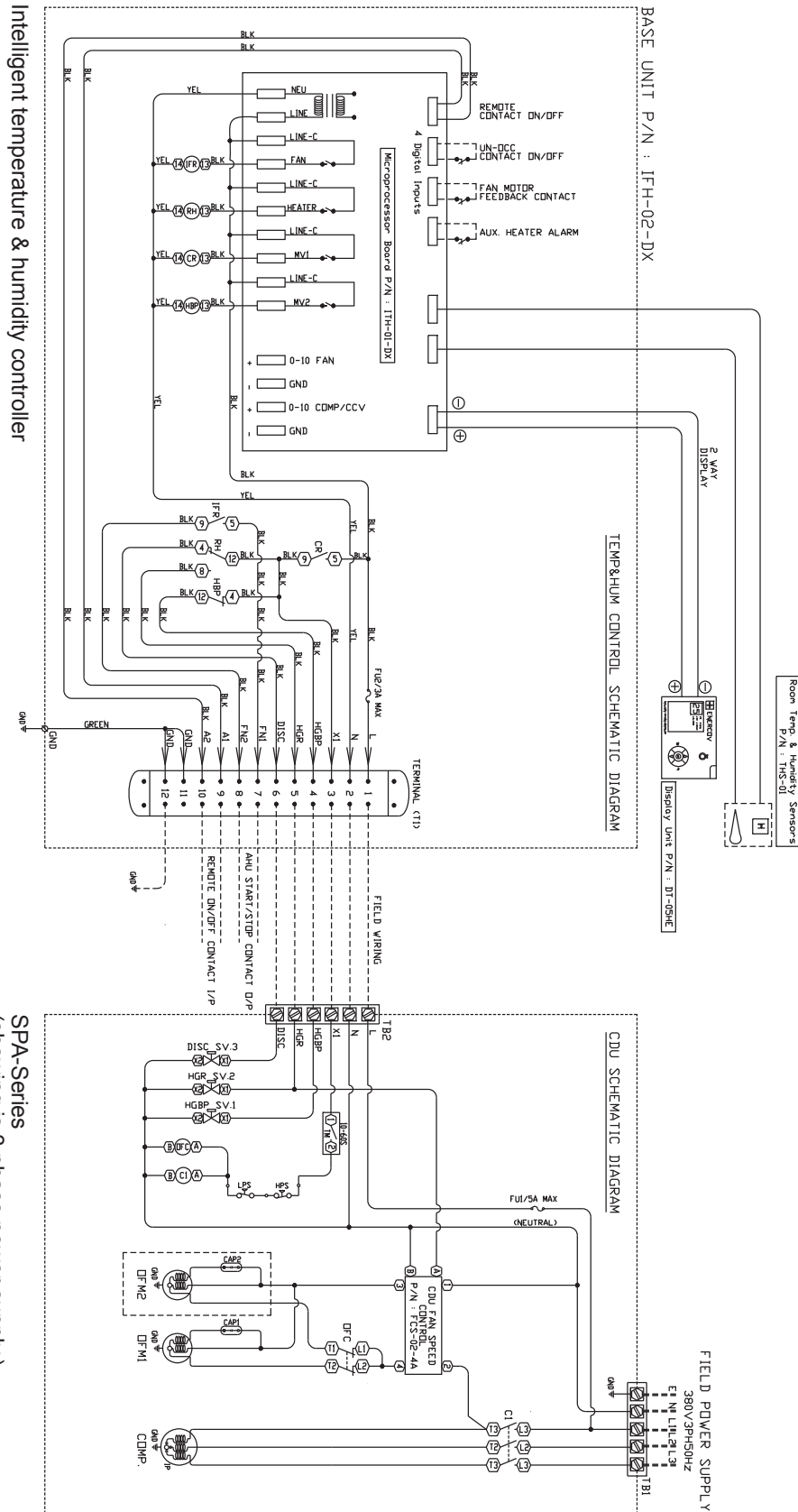
Function keys



Configuration & 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 when heating function is enabled. This function is applied to control hot gas reheat coil solenoid valve.
4. Room temperature and humidity display selectable. These 2 parameters can configurable to swap display by automatically.
5. Voltage free contact provides for supply air fan start/stop function.
6. Room sensors faulty alarm codes.
7. Room temperature & humidity sensors calibration is also available.
8. Proportional, integral gain and calculation time are configurable.
9. Remote contact On/Off configurable.
10. Un-occupied T&H setpoint configurable from free contact input.

ENERCOV's "IFH-02-DX" schematic wiring diagram



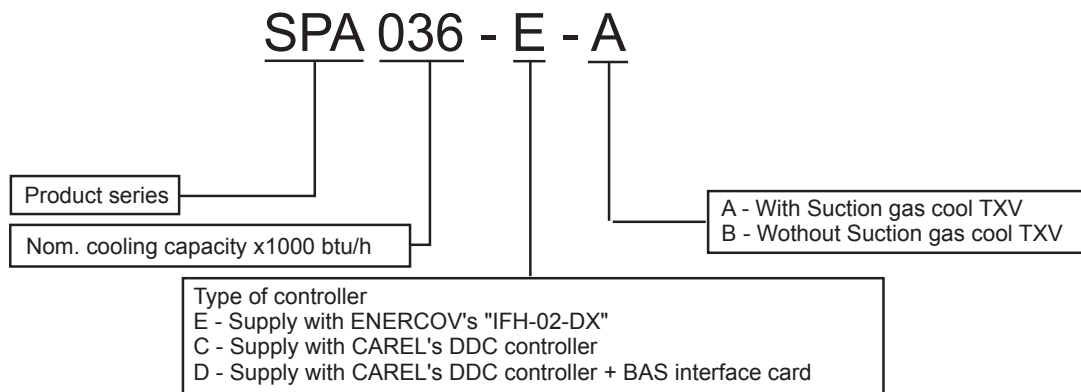
SPA-Series (showing is 3 phase power supply.)

SPA Series

Refrigerant pipe sizing installation (Type-L)

Heat Recovery Unit Model		Unit	SPA012	SPA018	SPA024	SPA032	SPA036
Nominal cooling capacity		kW	3.66	5.57	7.33	9.67	11.13
		Btu/hr	12,500	19,000	25,000	33,000	38,000
Equivalent length	Refrig Line	-	Pipe sizing upon equivalent length				
<10 m.	LIQ	Inches	3/8	3/8	3/8	3/8	3/8
	HGBP	Inches	3/8	3/8	3/8	1/2	1/2
	SUCT	Inches	1/2	5/8	5/8	3/4	3/4
	HGS/HGR/DISC	Inches	1/2	1/2	1/2	5/8	5/8
10-20 m.	LIQ	Inches	3/8	3/8	3/8	1/2	1/2
	HGBP	Inches	3/8	1/2	1/2	1/2	5/8
	SUCT	Inches	5/8	3/4	3/4	7/8	7/8
	HGS/HGR/DISC	Inches	1/2	5/8	5/8	5/8	3/4
20-30 m.	LIQ	Inches	3/8	3/8	1/2	1/2	1/2
	HGBP	Inches	3/8	1/2	1/2	5/8	5/8
	SUCT	Inches	5/8	3/4	7/8	7/8	1-1/8
	HGS/HGR/DISC	Inches	1/2	5/8	5/8	3/4	3/4
30-40 m.	LIQ	Inches	3/8	3/8	1/2	1/2	1/2
	HGBP	Inches	1/2	1/2	5/8	5/8	5/8
	SUCT	Inches	3/4	3/4	7/8	1-1/8	1-1/8
	HGS/HGR/DISC	Inches	5/8	5/8	3/4	3/4	3/4
40-50 m.	LIQ	Inches	3/8	1/2	1/2	1/2	1/2
	HGBP	Inches	1/2	1/2	5/8	3/4	3/4
	SUCT	Inches	3/4	7/8	7/8	1-1/8	1-1/8
	HGS/HGR/DISC	Inches	5/8	5/8	3/4	3/4	7/8

Product Nomenclature



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