TUV NORD (Thailand) Ltd. NSC-TISI-TIS 17021 QMS 005

ISO-9001:2015 certified

ENERCOV™

iAHDF Series

Duct Type

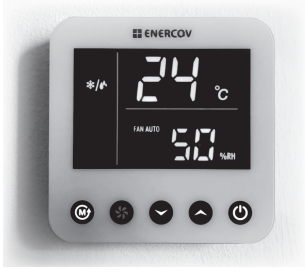
Humidity controls fan coil unit, with inverter compressor CDU without electric heaters.

Temperature & Humidity Controls Air Conditioner

Direct expansion duct connect fan coil unit

Patent Pending

°C + %RH



Wall mount intelligent temp & humidity controller with °C & %rh display.

New generation of FCU with ENERCOV's process algorithm controls. Design for special conditioned space that requires very precise of temperature and humidity to maintain very comfortably, moreover air fresher and healthy breathing.

iAHDF Series

ENERCOV air conditioner for humidity control

iAHDF series, Air conditioner system for special function room application to maintain environment such as temperature and humidity at desirable range. Direct expansion fan coil unit (FCU) is high static ceiling concealed with ducting installation and connected with enercov's air cooled condensing unit model iVRV. These FCU and CDU are operated together by regulates FCU's airflow rate and CDU's compressor speed to maintain room temperature and relative humidity without any additional heating element.

Micro-processor controls

Intelligent temperture & humidity controller with ENERCOV's process FUZZY algorithm provides very precise of room parameters. It consists of display unit, temperature & relative humidity sensors, controller and fan motor speed control. LCD display on the display unit shows real time actual temperature and relative humidity.

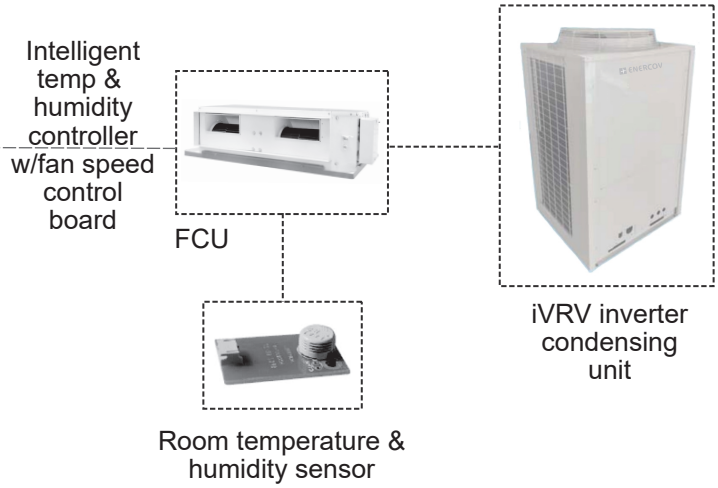
Display unit functions

Dim : 87Wx87Hx20D mm.
Wall mount

	Heating Element On/Off
	Temperature and Humidity Control Mode
	Cooling Control Mode
FILTER	Filter Clog Indicator (if applied)
ALARM	Unit Alarm Indicator
FAN AUTO	Fan Automatic Control Status Indicator
PROGM	Programmable Mode
25.℃	Actual Room Temperature or Setpoint Indicator
50 %RH	Actual Room Humidity or Setpoint Indicator
	Fan Speed Running Indicator

Function Keypads

Wireless Remote Control



Control Functions

1. Room temp. & humidity are controlled by ENERCOV's process FUZZY/PID adaptive algorithm.
2. Cooling mode and temperature/humidity control mode selectable.
3. Aux HEATER lights up means heater energized.
4. Room temperature and relative humidity real time display
5. Supply air fan can config to vary speed to maintain room condition by automatically.
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. FCU fan minimum speed is configurable.
10. Alarm display codes.
11. Provide with infrared wireless remote control.
12. Pre-configuration programmable software.
13. Modbus interface port for BAS communication (option).

Operating Mode
> Cooling Only is a normal room thermostat function. This mode will control room temperature only.
> Temp & humidty control mode is an ENERCOV's process algorithm to maintain room temperature and humidity automatically.

Temperature and humidity setting
> Temperature setting
By pressing UP or DOWN key to decrease or increase temperature setpoint by 1.0°C
> Humidity setting
By pressing 2 configured keypads for 7 seconds and press UP or DOWN key to decrease or increase humidity setpoint by 5%RH (30 - 80%RH adjustable).

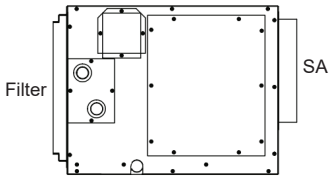
Temperature & Humidity displaying
> Upper 7 segments LCD will display real time space temperature (deg C)
> Lower 7 segments LCD will display real time space relative humidity (%rh)

Configuration Mode
Intelligent controller can apply to various application. Each application can acces to set up internal programme to config each decision by pressing configuration access keys. This configuration mode includes temperature /humidity sensor calibration, response time setting, minimun/maximum fan speed set up, remote on/off setting, aux. heater setting, etc.

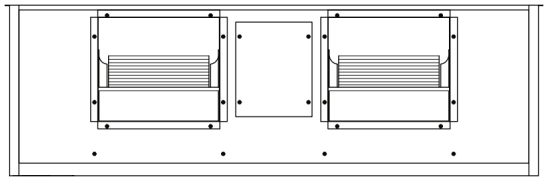
Low noise configuration
If client needs to operature FCU low noise area, for example below 40dB(A). Engineer shall select the right maximum fan speed and cooling capacity according to room heat load. This condition must be selected at low noise in technical data table. Furthermore, we also need to config software to limit maximun fan running speed inside configuration mode during initial starting up.

Other Functions
> Self Diagnostic
> Watchdog
> Humidity sensor ERROR code
> Temperature sensor ERROR code
> Non-volatile memory

General Data



Side section


Front section

External static pressure
> Maximum 200 Pa.

Drain pan
> Drain pan is EG sheet with enamel painting. Under tray covered with close cell insulation.
> Drain pipe connection is 32 mm outside diameter.

Frame & Housing
> Housing frame is construted by galvanized sheet thickness 1.6 mm.
> Casing is construted by galvanized sheet thickness 1.2 mm.
> Rigid air outlet housing made by electro galvanized (EG) sheet thickness 1.6 mm.
> All surface metal sheets are white painting
> Cooling coil cover plate is EG sheet thickness 0.7 mm.
> Closed cell foam inuslation thickness 19 mm.

Cooling coil
> Cooling coil made by smooth copper aluminium fins
> Coil face velocity < 2.20 m/s
> Maximum operating pressure 150 PSIG (10 Bar)
> Factory N2 under water test pressure 250 PSIG

Fan Blower
> Blower is double width double inlet forward curve centifugal type.
> Fan blower is mounted on a rigid shaft in self aligning bearing.
> Fan blower is statically and dynamically balanced from factory.
> Motor is whether proof type, Maximun speed is 1450 rpm.

Technical Data

Technical Product Data

Fan Coil Model				Unit	iAHDF080	iAHDF100	iAHDF120
Air Flow Rate		**Turbo Speed**		CMH	**3738**	**5097**	**6388**
				CFM	2200	3000	3760
Cooling Coil	**Cooling Capacity**	Cooling Capacity (Turbo Speed)		**BTU/H**	**87300**	**115100**	**149500**
				kW	25.58	33.72	43.80
				CMH	3737	5096	6388
		Cooling Capacity (HighSpeed)		**BTU/H**	**70000**	**92000**	**120000**
				kW	20.51	26.96	35.16
				CMH	3000	4080	5100
		Cooling Capacity (Med Speed)		**BTU/H**	**52000**	**70000**	**89700**
				kW	15.24	20.51	26.28
				CMH	2250	3060	3830
		Air Velocity	**Turbo Speed**	**m/s**	**2.14**	**2.50**	**2.74**
			Hi Speed	m/s	1.71	2.00	2.19
			Med Speed	m/s	1.29	1.50	1.64
Noise	**Sound Pressure Levels**	Turbo Speed		dB(A)	56	57	56
		High Speed		**dB(A)**	**50**	**50**	**49**
		Medium Speed		dB(A)	46	46	46
		Low Speed		**dB(A)**	**42**	**42**	**43**
Blower & Fan Motor	**Power Input**	Total Rated Power		W	400	550	550
		Qty		**-**	**1**	**1**	**1**
	Motor	Type		-	AC Motor		
	Power	**Rated**		**kW**	**0.75**	**1.1**	**1.1**
		Source		-	220-240V/1Ph/50Hz		
	Drive	-		-	AC Motor Speed Controls Drive		
	Fan pressure	Total pressure		Pa	280	270	290
Aux. Electric Heater (Option)		**Total Heating Capacity**		**W**	**3000**	**3000**	**4500**
		Power Supply		-	220-240V/1Ph/50Hz		
		Current		**A**	**13.64**	**13.64**	**20.45**
Water Pipe Connection		Diameter		In.	Threaded 1-1/4"		
Drain Pipe		**Diameter (OD)**		**In.**	**7/8" (1-1/4" Option)**		
Dimension		Width		mm.	1560	1560	1892
		Height		**mm.**	**400**	**452**	**452**
		Depth		mm.	592	614	714
Weight		**Approx.**		**Kg.**	**65**	**99**	**104**
Controller		**Main**		**-**	**Micro Processor W/Modbus Communication to BAS/BMS**		
		Display		-	LCD W/Temperature & Relative Humidity Display		
		Wireless Remote Control		**-**	**Yes, Infrared**		
Inverter Condensing Unit				**Unit**	**iVRV080**	**iVRV100**	**iVRV120**
Cooling Capacty		**Max**		BTU/H	**80000**	**100000**	**120000**
		Min		CFM	20000	25000	30000
Cooling Capacty		**Max**		kW	**23.4**	**29.3**	**35.2**
		Min		kW	5.9	7.3	8.8
Heating Devices		-		-	Hot Gas Solenoid Valve		
Compressor & CDU Fan		**Type**		Type	**BLDC inverter scroll compressor**		
		Total Power Input		kW	8.2	10.1	11.7
Metering Devices		**-**		**-**	**Built In Electronic Expansion Valve 500 Steps**		
High/Low Pressure		High Pressure Switch		-	Yes		
		Low Pressure Switch		-	Yes		
		High Pressure Transducer		-	Option		
		Low Pressure Transducer		-	Option		
High/Low Pressure		**Ambient Temp**		**-**	**Yes**		
		Discharge Gas		**-**	**Yes**		
		Condensing Coil		**-**	**Yes**		
		Suction Gas		**-**	**Yes**		
Other Data		V/Ph/Hz			380-415/3/50		
		Type			Aluminium plate fins, copper tube		
		Type			Propeller fan		
		Motor			Brush less direct current (BLDC)		
		Suction			7/8	7/8	1-1/8
		Liquid			3/8	1/2	1/2
		Width			930.0		
		Height			1533.0		
		Dept			822.0		
		kgs			135.0	150.0	165.0

Note : Cooling cap. based on 27°CDB, 19°CWB of room condition and CHW supply temperature 7.0°C, temperature rising 5.5°C.

iAHDF080 to 120
Duct connect, high pressure

iVRV080 to 120
Inverter CDU

Wall mount
intelligent temp &
humidity controller
with °C & %rh display.