

ISD 310KBY

Ducted Split System Indoor Units

Installation & Maintenance

GENERAL

These ISD 310KBY indoor unit is designed to be coupled with the OSA 310RKTBV outdoor unit. Units must be installed in accordance with all national and local safety codes.

Options

1. Filter Box c/w polypropylene net filter
2. Spring Mounting Kit

AIR FILTRATION / FILTER BOX (Option)

As air filtration requirements vary, filters are not supplied with the unit. Filters should ideally be installed on the return air side of the unit, no closer than 500mm from the back of the unit and easily accessible for cleaning. To maximise the efficiency of air flow, the return air filter should be twice the area of the ISD unit's return air spigot/s. If efficiency is less of a concern a Filter Box is available.

The Filter Box is installed by unscrewing the return air spigot and replacing it with the filter box. The three filter panels may be accessed from either side of the box. The filter box adds 90 mm to the depth of the unit.

INSTALLATION

Positioning & Mounting

Provide 500 mm minimum clearance to both end panels. If the filter box option is to be used, allow adequate clearance for the three filters to be withdrawn from either side of the unit.

If low noise is a critical factor in the installation, refer to Figure 5 for noise isolation recommendations.

It is recommended that the unit be mounted using the spring mounting system, supplied as an optional extra (Fig.3). This system minimises transfer of vibration into the building structure.

If a more rigid installation can be tolerated, then suspend the unit using the four mounting straps supplied, as shown in Figure 4. Use the existing bolts, nuts & washers at the top corners of the unit.

Alternatively, the unit can be mounted on a suitable platform using vibration isolators.

The unit must be installed with the drain tray tilted about 10 mm along its length so that the drain connection is at the lowest point.

Condensate Drain

The condensate drain should be trapped outside the unit cabinet. The trap should have a vertical height of at least 50 mm. The drain should have a slope of at least 1 in 50 and must not be piped to a level above the unit drain tray (refer Fig.2).

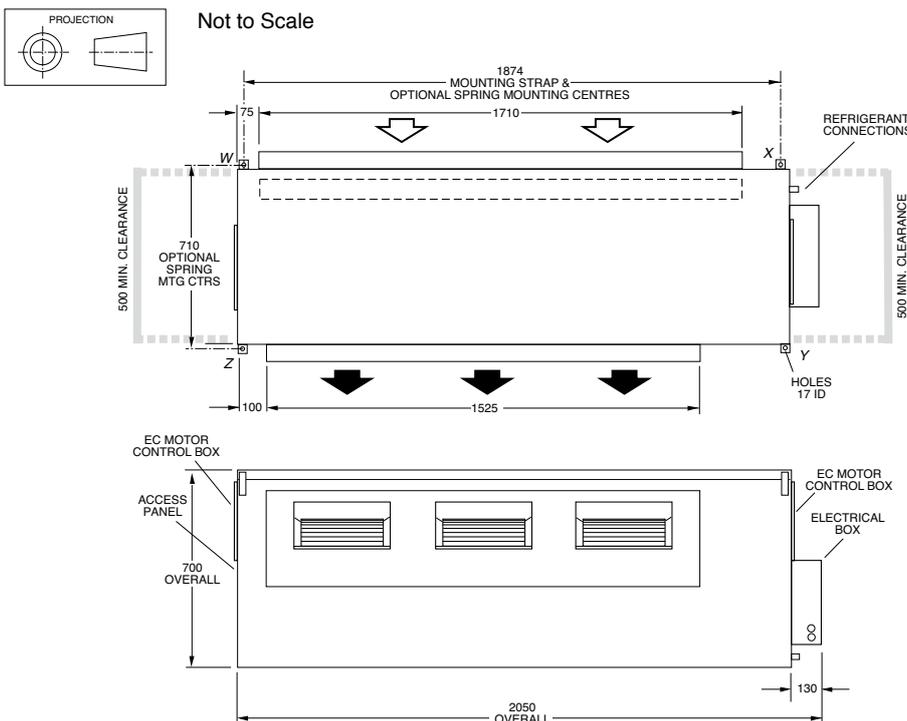
For long condensate pipe runs, fit a vent pipe near the drain trap. The top of the vent pipe must be at least 100 mm above the ISD unit's drain tray.

It is essential that the drainage system for the evaporator is checked by pouring water in the drain tray and seeing that it discharges at the end of the drain and does not overflow the drain tray.

INDOOR-OUTDOOR UNIT CONNECTIONS

Refer to the relevant OSA Outdoor Unit 'Installation & Maintenance' pamphlet for piping instructions. For wiring connections, refer to the Outdoor Unit wiring diagram in conjunction with the ISD wiring diagram on this pamphlet.

Fig.1 Dimensions (mm)



CORNER LOADS (kg)			
W	X	Y	Z
10	76	18	75

Net Weight 179 kg

Note: The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

REFRIGERATION PIPING

Pipe Connection Sizes & Type

Liquid : 13 mm OD ($1/2$ ") sweat

Suction : 22 mm OD ($7/8$ ") sweat

The ISD is shipped from the factory with a pressurised holding charge of nitrogen. Immediately before removing any brazed pipe connection's seal, reduce holding charge to atmospheric pressure.

Warning: Failure to do so may cause injury.

Refer to the Outdoor Unit 'Installation & Maintenance' pamphlet for evacuation procedure and piping requirements.

ELECTRICAL WIRING

The electrical supply required (via the Outdoor Unit) is specified on the Outdoor Unit's wiring diagram.

Electrical work must be carried out by a qualified electrician in accordance with local supply authority regulations and the wiring diagram.

In a free blow or low resistance application, beware of exceeding the fan motor's full load amp limit (refer Outdoor unit's wiring diagram).

To make the indoor fan switch off during de-ice cycle, refer to the Outdoor Unit's installation instructions.

INDOOR FAN SPEED

The indoor fan speed can be 'Stepped' or 'Continuously Variable'. The choice is made using Switch 1 of 'DIP1' on the EC Motor Controller. Switches 1 to 5 on 'DIP2' determine the minimum and maximum fan speeds.

The same 'Minimum rpm' and 'Maximum rpm' settings apply to 'Stepped' and 'Continuously Variable'.

The default settings for DIP1 and DIP2 are highlighted on the Wiring Schematic.

1. Stepped (DIP1 switch 1 = OFF)

Connecting the 24V AC power from the unit's 'HOT 24V' terminal to one (and only one at a time) of the 'LOW 24V' / 'MED 24V' / 'HIGH 24V' terminals, selects the 'LOW' (Min. rpm), 'HIGH' (Max. rpm), or 'MED' (mid-way between) fan speed. The transitions between speeds are smooth.

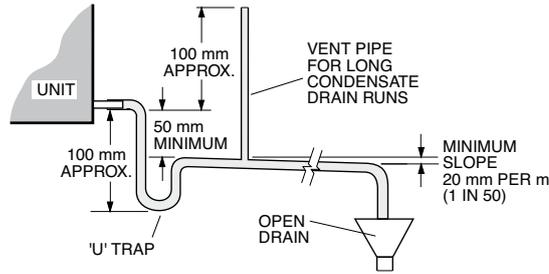
2. Continuously Variable (DIP1 switch 1=ON)

When using this method a temperature Analog Signal Isolator (No. 201-000-129) must be fitted and connected as shown in the wiring schematic. 24V AC or DC power from the external (BMS) controller should be provided to the '24V' and '0V' input terminals of the Signal Isolator board.

A voltage below 2V DC applied across the '0V' and the '0-10V' input terminals (labelled 'From BMS Controller' in the wiring schematic) of the Signal Isolator will stop the indoor fan. A control voltage of slightly more than 2V will cause the fan to run at the 'Min. rpm' speed. A 10V DC signal will run the fan at the 'Max. rpm' speed. Control voltages between these two limits can be used to achieve any desired speed between 'Min.' and 'Max.' rpm.

Do not use switch combinations marked with 'DO NOT USE' in the Speed Selection table.

Fig. 2



Condensate Drain

Fig. 3 Spring Mounting

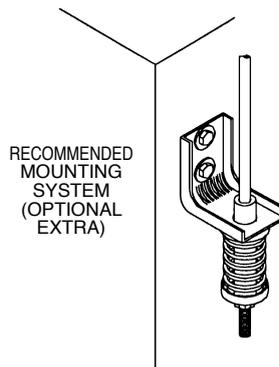
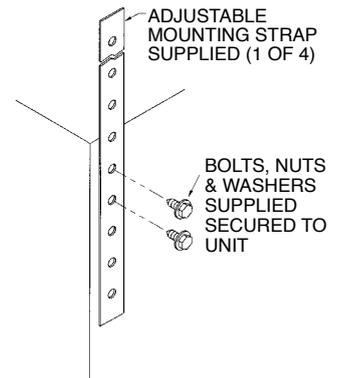


Fig. 4 Strap Mounting



If the air returning to the indoor unit is regularly expected to be above 50%RH, then the coil face velocity should be limited to be 2.5 m/s or less (refer Air Handling graph in Technical Data pamphlet).

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Select a fan speed that avoids water carry-over problems.

4. Check that fan motor is free running.
5. Check tightness of electrical connections.
6. Check air supply at diffuser outlets.

NOTE

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

This pamphlet replaces the previous issue no. 3875 dated 12/12. Wiring revision D.

COMMISSIONING

Indoor Unit

1. Check that the thermostat is correctly wired and set at the desired temperature.
2. Check that any air filter (if fitted) is clean.
3. Check that the fan runs freely without vibration.
4. Check condensate drain for free drainage.
5. Run the unit in cooling and heating modes.

MAINTENANCE

Weekly For First Four Weeks

1. Check air filter (if fitted); vacuum clean as necessary.
2. Check condensate drain for free drainage.

Monthly

Check air filter (if fitted); vacuum clean as necessary.

Six Monthly

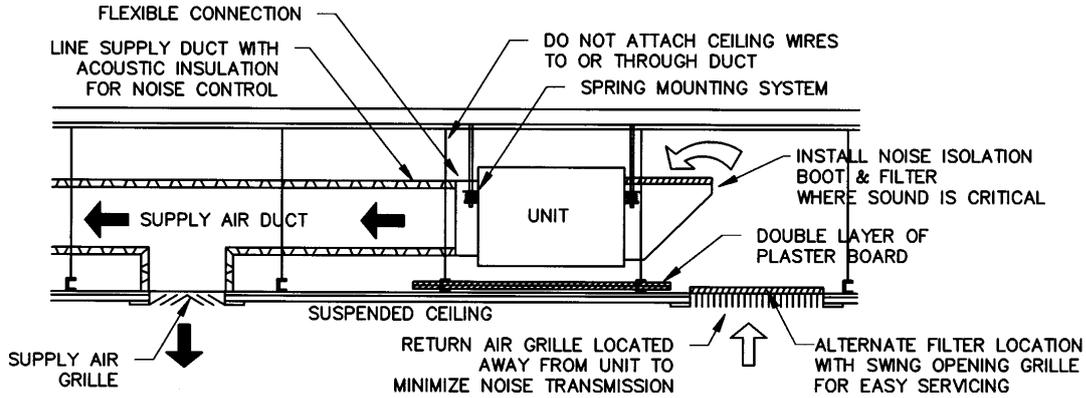
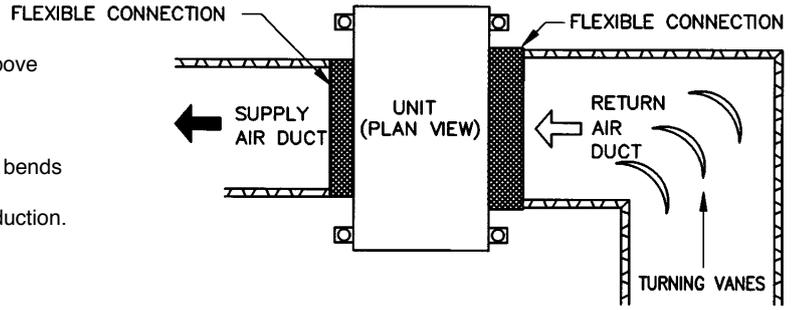
1. Check condensate drain for free drainage.
2. Check heat exchanger coil; vacuum or brush clean as necessary.
3. Check the tightness of the fan.

Fig. 5 Application Considerations

Recommendations for Noise Isolation

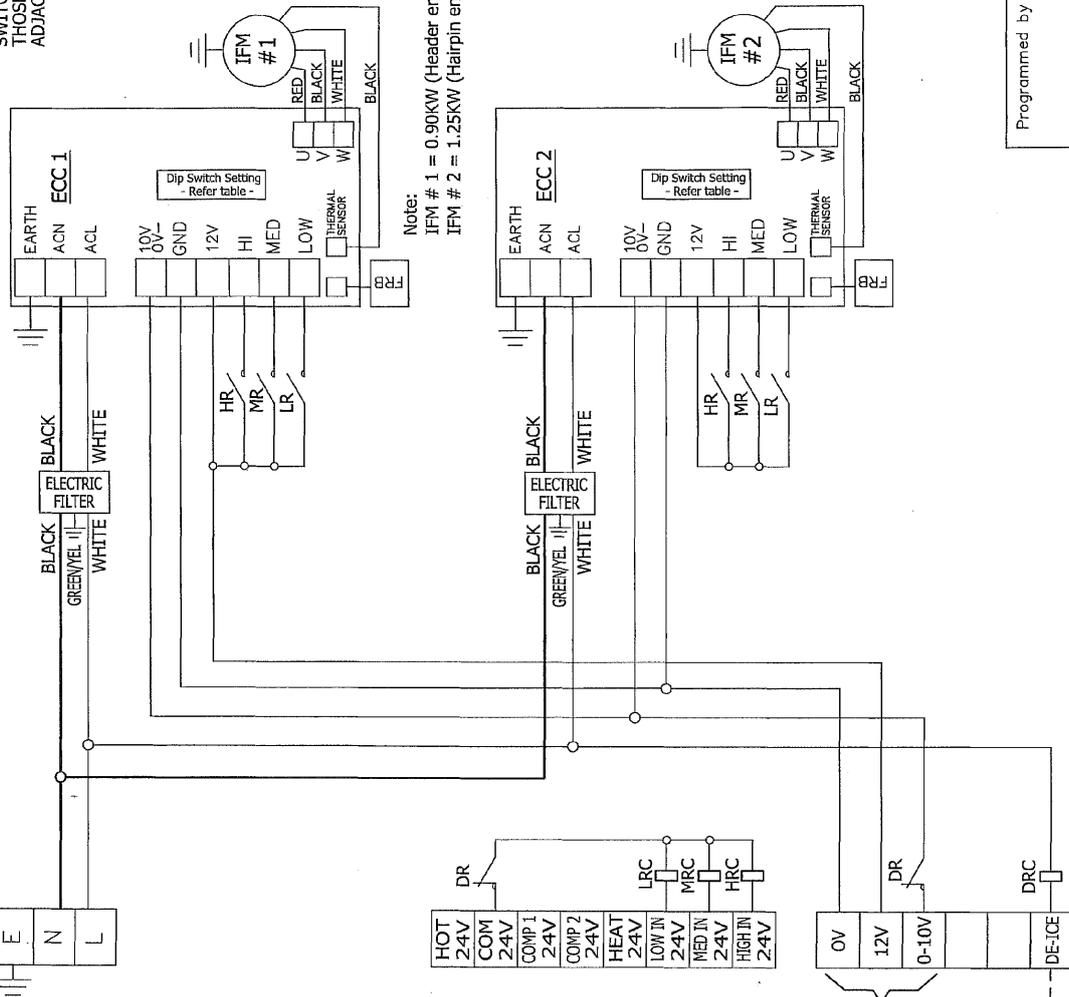
- particularly for high static installations:

1. Avoid installing units, with non-ducted return air, directly above spaces where noise is critical.
2. Use flexible connections between unit and rigid ducting.
3. Use generously sized acoustically lined ducts.
4. If generous duct size is not possible, use turning vanes on bends to reduce air turbulence (regenerated noise).
5. Use 90° bends in ducting to significantly assist in noise reduction.



EC-BOARD SPEED SELECTION(0.9-1.25KW) - DIP SWITCH 2 (DIP2)

DO NOT USE ANY OTHER DIP SWITCH COMBINATIONS EXCEPT THOSE SHOWN IN THE TABLE ADJACENT.



Note:
IFM # 1 = 0.90KW (Header end)
IFM # 2 = 1.25KW (Hairpin end)

WARNING: These three terminals are not isolated from mains. Terminal labels represent reference voltage between terminals only.

De-Ice Note: Only use this terminal if this ISD is connected to an OSA with an OUC controller.

SWITCH 1	OFF	OFF	OFF	OFF
SWITCH 2	OFF	ON	OFF	OFF
SWITCH 3	ON	ON	OFF	ON
SWITCH 4	OFF	OFF	ON	ON
SWITCH 5	OFF	OFF	OFF	OFF
Max (rpm)	1350	1300	1200	1100
Min (rpm)	1050	1000	900	800

Model	ISD 310KBY
Voltage In	V 230/240
IFM #1 (0.90KW) Amps (max)	5.3 A
IFM #2 (1.25KW) Amps (max)	8.5 A
DR	De-ice Relay
DRC	De-ice Relay Coil
ECC	EC Motor Controller
FRB	Fault Relay Board
HR	Fan High Relay
HRC	Fan High Relay Coil
IFM	Indoor Fan Motor
LR	Fan Low Relay
LRC	Fan Low Relay Coil
MR	Fan Med Relay
MRC	Fan Med Relay Coil

Standard Setting	OFF	ON
1	3 Speed Fan Hi/Med/Low	0-10V Control
2	Normal Forward Action	Reverse Action
3	900W & 1.25KW Motor	Do Not Use
4	Leave in this position	Do Not Use

Client wiring --- Visit www.temperzone.biz for client wiring diagrams.

Title
ISD 310KBY WIRING SCHEMATIC

Drawn SDH Date 28-01-11 Drawing No. 525-424-602 Revision D
Scale Aprvd [Signature]

Programmed by
Plotted 23-10-14
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ISSUE	MODIFICATION	ECN	DATE	APRVD
D	IFM Amps max: 5.3 was 5.0 , 8.5 was 6.0	N3615	24-10-14	S.D.H.
C	Set Dip 1, Switch No.3 to the 'OFF' Position/Speed Selection Table Note	N3113	13-09-12	CMW
B	Removed Outdoor wiring layout.Chg De-ice note.Warning note added. Web site and client wiring info updated.	N2967	29-03-12	CMW

DRG SIZE	No.	DESCRIPTION	Mat'l	FINISH	Mat'l	ASSY No.