

# ISD 380KBY

## Ducted Split System Indoor Units

## Installation & Maintenance

### GENERAL

These ISD 380KBY indoor unit is designed to be coupled with the OSA 380RKTBV 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 600 mm minimum clearance to the 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 If the filter box option is to be used, allow adequate clearance for the three filters to be withdrawn from either side of the unit.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).

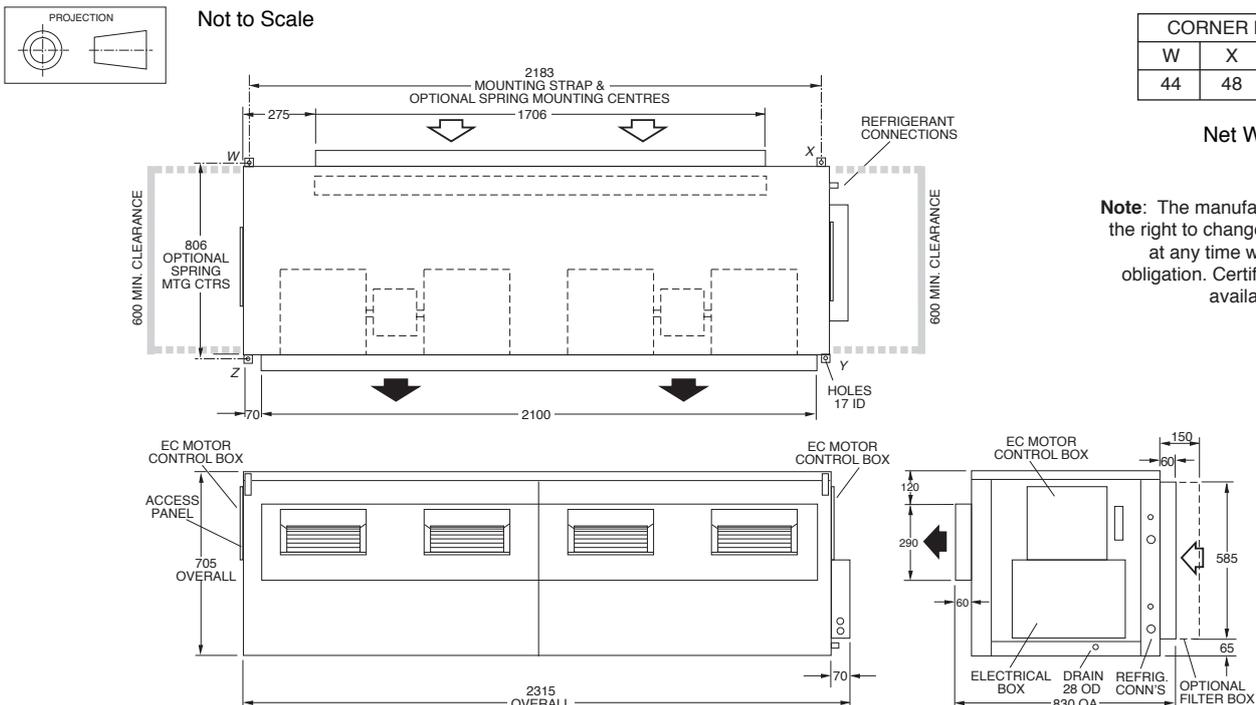
For long condensate pipe runs, fit a vent pipe near the drain trap. The top of the vent pipe must be at least 100 mm above the ISD unit's drain tray.

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)



## 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).

If 'Indoor Fan Off During De-ice' is a requirement, 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 (one at each end of the unit). 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.

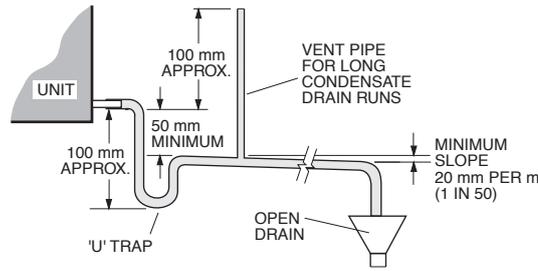
### 2. Continuously Variable (DIP1 switch 1=ON)

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

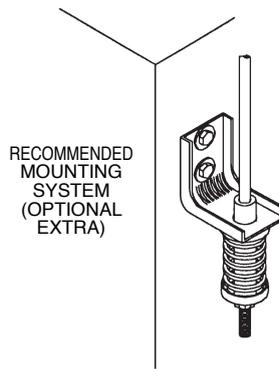
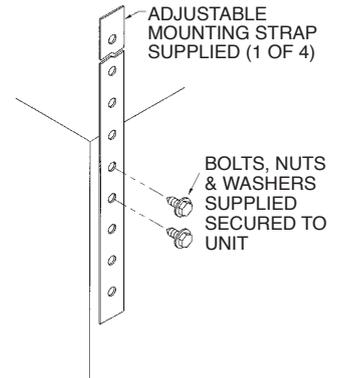


Fig. 4 Strap Mounting



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.

## 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.

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.

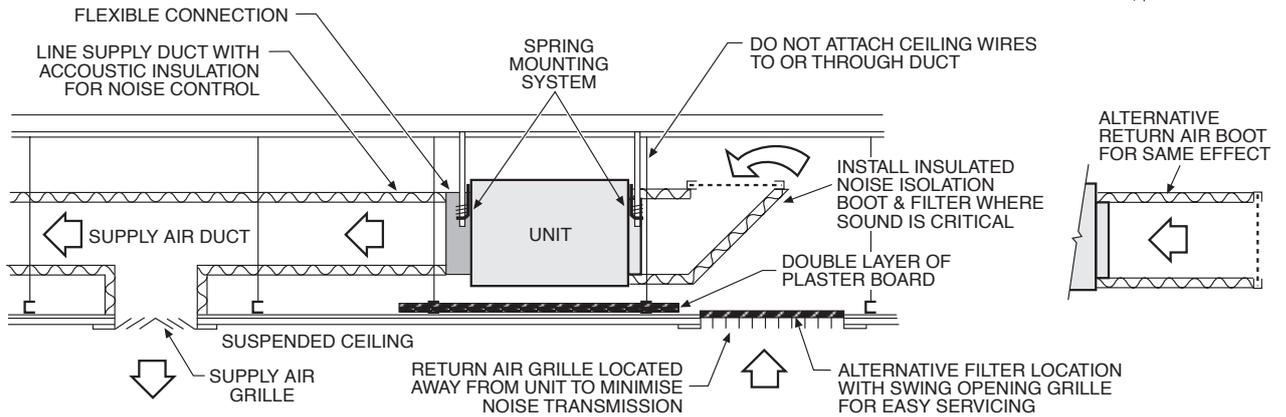
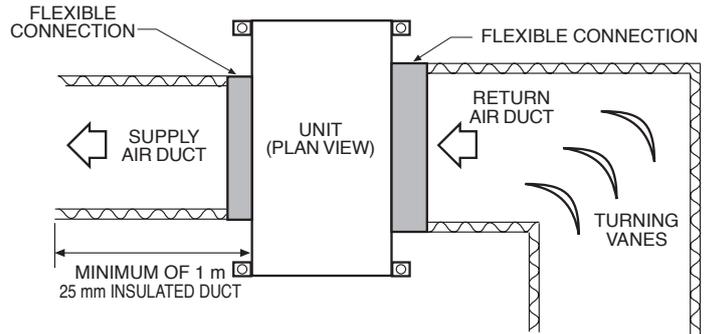
This pamphlet replaces the previous issue no. 3826 dated 02/18. Wiring revision I.

## 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.

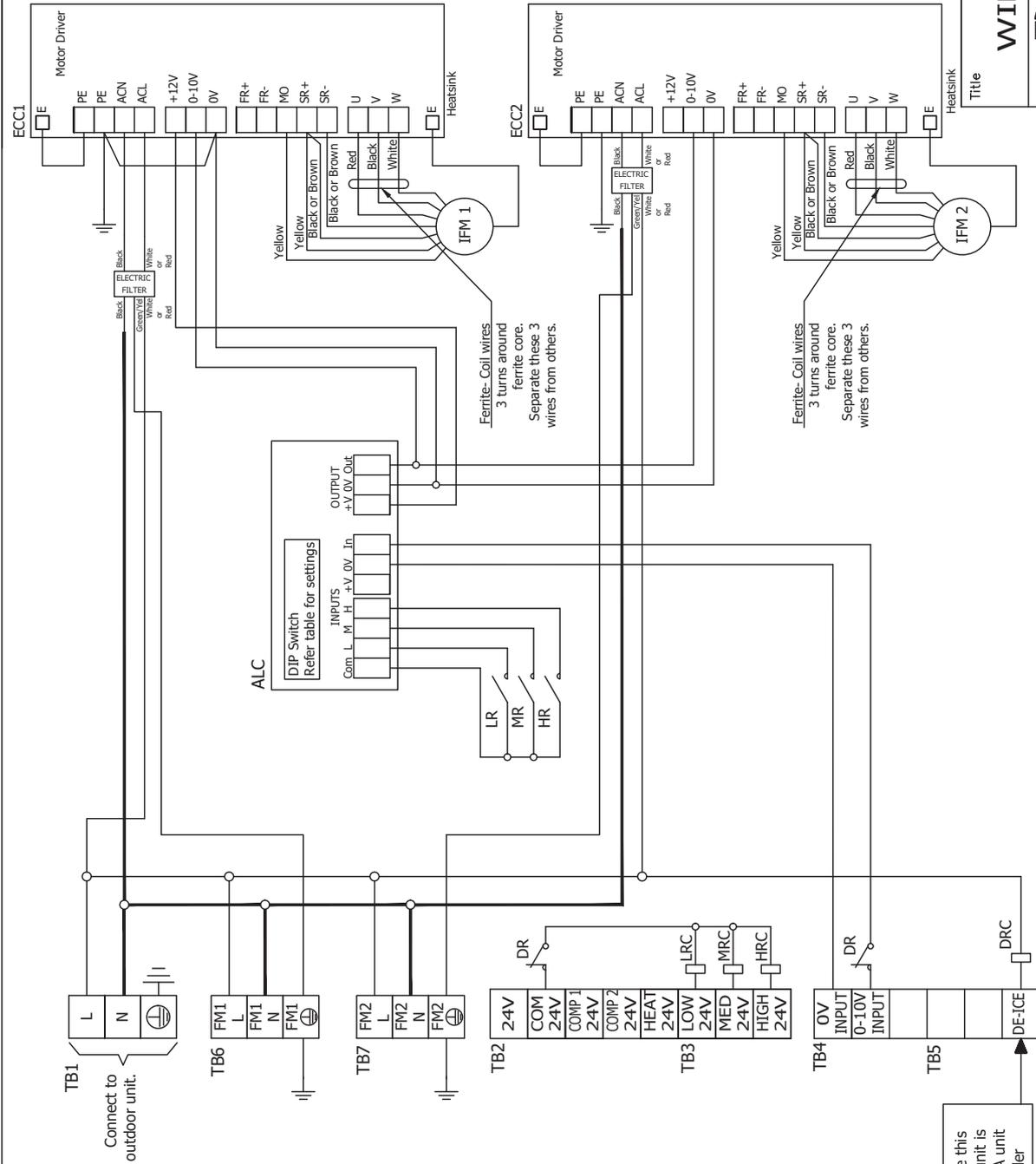


ALC	Analogue Level Controller
DR	De-ice Relay
HR	Hi Speed Relay
IFM	Indoor Fan Motor
LR	Low Speed Relay
MR	Med Speed Relay



INDOOR FAN SPEED ALC DIP SETTINGS						
DIP Switch						RPM
1	2	3	4	5	6	MIN MAX
ON	ON	OFF	OFF	OFF	900	1200
ON	ON	ON	OFF	OFF	1050	1350
ON	ON	OFF	ON	OFF	1000	1300
ON	OFF	ON	ON	OFF	825	1125

IFM amps (max) 8.0A each  
 DO NOT USE ANY OTHER DIP SWITCH COMBINATIONS EXCEPT THOSE SHOWN IN THE TABLE ABOVE.  
 SHADED AREA = DEFAULT FACTORY DIP SETTINGS  
 DIP SWITCH 8 MUST BE ON FOR UNITS FITTED WITH ELECTRIC HEAT  
 DIP SWITCH 7 ALWAYS OFF



Device Note: Only use this terminal if this ISD unit is connected to an OSA unit with an OUC controller

**ISD 380KBY**  
**WIRING SCHEMATIC**

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Drawn SDH	Date 28-01-11	Revision
Aprvd SR	PCG	525-504-602

ISSUE	MODIFICATION	ECN	DATE	APRVD
I	ALC Version Upgraded; New DIP Settings	14059	20-07-18	P.M.C
H	ECC 1260 RENAMED MOTOR DRIVER	14013	15-01-18	L.O.L
G	Added terminal block numbers for new push-in TBs. TB1 L & E swap position.	10394	06-10-17	L.O.L