

RBC-RD6 Leak Detection & Refrigerant Pump Down System

Toshiba Air Conditioning have developed an innovative new approach to detecting and containing refrigerant leaks that offers complete assurance and protection for end users, building occupiers and the environment. The Toshiba solution is considered so effective that buildings equipped with this system qualify for additional BREEAM points and also provide a means to demonstrate compliance with the current **EN378 2008** standard where refrigeration concentration levels exceed practical safety limits of 0.44kg/m³.

The advanced **RBC-RD6** system works by monitoring the low-side pressure using a 0-5 Volt Pressure Sensor installed in the VRF outdoor unit as well as up to four discharge line temperature sensors for each system which allows the CPU to detect the increased discharge temperatures associated with a gradual refrigerant loss or a major loss.

The sensor data is fed back to a CPU located within the RBC-RD6 panel, and on activation an audible and visual signal is given at the panel also remotely if required. The outdoor unit is enabled and set to cooling mode, the liquid and discharge pipes are isolated and a pump-down commences. The pump-down duration is controlled via the CPU and on termination the suction line is isolated sealing the refrigerant from the protected space.

- Offers full protection
- Fully automated system, without the risk of false alarms from space sensors
- Can be configured with a suitable BMS to trigger a pump-down
- Can detect serious and/or gradual refrigerant loss at any point on the system
- Can be configured to pick up L30 alarms from RD3 space sensors
- Works in conjunction with the RBC-RP1 & RBC-RI1
- Offers EN378 2008 compliance

The **RBC-RP1** repeater panel works in conjunction with the **RBC-RI1** (room indicator). On activation of the RBC-RD6 a signal is sent to the RBC-RP1 which in turn will activate the RBC-RI1 to alert the occupier that the system has gone into pump down mode. The RBC-RI1 will give an audible and/or visual signal which can be deactivated by an integrated button.

All leak detection options can be used on the following Toshiba systems:

- Digital & Super Digital Inverter Split Systems
- All VRF systems including Mini SMMS, SMMS, SMMSi, SHRM and SHRMi.

Where Digital and Super Digital Inverter units are selected, the contractor will need to insert a Schrader access port into the common suction line. Before this can be carried out the refrigerant from the outdoor unit would need to be removed. This on site modification is required to enable the pump-down solutions to work with these units.

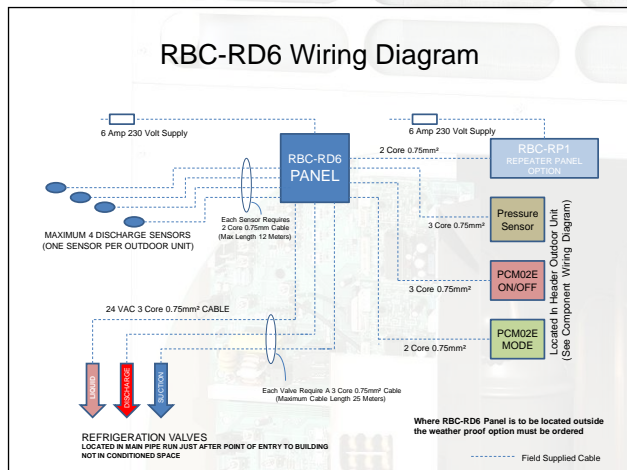
Leak Detection Set-Up

The leak detection system works via sensors which detect changes in the refrigerant pressure signifying a decrease in the levels of refrigerant within the system. This triggers an audible and visual alarm and shuts down the device. In the case of the RBC-RD6, the outdoor unit will be forced into a cooling mode which will enable the system to pump-down.

Installation Criteria

The standard RBC-RD6 panel and valve kits are not designed for external use. If the panel and/or valves require to be mounted externally then a weatherproof option can be provided at additional cost.

As Toshiba will specify and supply the correctly sized refrigerant valves the system design clearly showing refrigerant pipe sizes must be provided to Toshiba at the point of ordering. Valves must be installed as per our installation guidelines.



Multi core SY or armoured cable can be utilised for outdoor discharge sensors, pressure sensors and option control boards where it is beneficial.

Maximum cable lengths are specified on the wiring diagram example. Individual wiring diagrams will be sent with each panel for the pressure sensors and accessory board options.

Leak Detection Options

Toshiba provide a full range of leak detection and refrigerant containment options:

- RBC-RD3 Space sensor alarm, offering detection and shutdown.
- RBC-RD4 Low side pressure sensing, offering detection and shutdown.
- RBC-RD6 Complete detection and refrigerant pump down.

Full details of above available upon request.

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