

**TOSHIBA**  
*Carrier*



Light commercial range



Passion at work



# Light Commercial

## Solutions for professionals, from professionals

Toshiba-Carrier Super Digital Inverter systems deliver exceptional operating savings in extremely compact units. With state-of-the-art technologies, flexible controls and improved installation they bring comfort and convenience to any commercial installation.

A complete range of indoor units satisfies all commercial applications: underceiling, cassette and high-wall. The wide range with maximum cooling capacities up to 42 KBTUH can address even more commercial applications with larger loads.

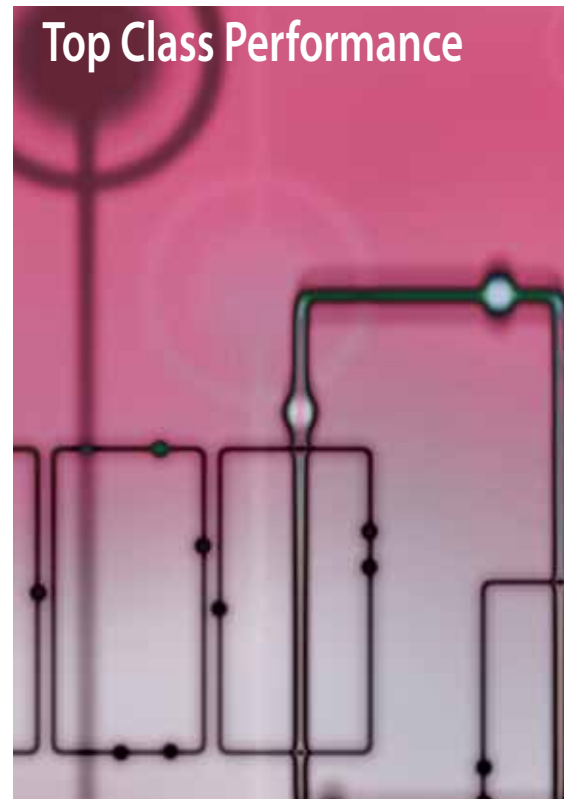
## When the inverter becomes digital

The technology of the Super Digital Inverter control module ensures optimized reproduction of the supply sine wave at the desired frequency, in order to reduce inefficient harmonics that inverters normally emit.

With this innovative control method, the Toshiba-Carrier Super Digital Inverter brings state-of-the-art inverter technology to the commercial sector, offering considerable advantages in terms of capacity, energy savings and optimized comfort.

All of this and the compressor operation is practically inaudible.

## Top Class Performance





## Who says that you must choose between improved performance and minimized consumption?

The Toshiba-Carrier Super Digital Inverter systems are powerful and extremely efficient. They provide air conditioning with great energy savings.

The new Super Digital Inverter provides efficiency, which is among the highest in the industry: up to 21 SEER in cooling mode and over 11 HSPF in heating mode.

The variable capacity management of the compressor allows the Super Digital Inverter to maintain room temperature control and to ensure minimum energy usage.





## Indoor units: an extended range of solutions

Toshiba-Carrier offers a wide range of systems and indoor units, to satisfy any kind of requirement.

They're ideal for shops, offices and restaurants.

Slim underceiling units, discreet cassettes and stylish high-walls: Toshiba-Carrier can offer the right solution to meet the most demanding application.



### Cassette

This compact unit is easy to install and to maintain, while providing high performance and total comfort. Unobtrusive and flexible, it's ideal for small commercial applications, where space is limited.



### Underceiling

Thanks to its long throw, this underceiling unit is the right solution for long offices, classrooms and restaurants. It provides high efficiency and very low noise level.



### High-wall

With its stylish and compact design, this high-wall can easily blend with in any room interior. It's particularly suitable for elegant shops and restaurants.

\* 30, 36 KBTU 4-way cassette and underceiling



## All the flexibility you have ever dreamt of

If you want high performance, compact units and optimum comfort, Toshiba-Carrier has the ideal product for your requirements.

With the continuous improvement of the inverter control system, Toshiba-Carrier offers vector control for its DC hybrid inverter, which enhances system efficiency and reduces noise levels in the power lines.

The new developments in electronics have been complemented by compressor innovation. High-tech elements include improved coils, high precision components and higher refrigerant compression thanks to redesigned compression channels.

The new technology applied to Super Digital Inverter is able to satisfy applications that require cooling at low operating conditions down to 5°F (with field fabricated wind baffle). Powerful heating capacities are possible at -4°F outdoor temperature.

The enhanced Eco-driving DC twin-rotary compressor delivers stable performance with extremely low rotor friction, making it ideal for noise-sensitive applications as well as for efficient operations in partial load conditions.



### Light Commercial range **Matching table**

Outdoor units				
Indoor units		SUPER DIGITAL INVERTER		
HP INVERTER	 <b>Four-way cassette</b> RAV-SPxxxUT-UL	✓	✓	✓
	 <b>Underceiling</b> RAV-SPxxxCT-UL	✓	✓	✓
	 <b>Hi Wall</b> RAV-SPxxxKRT-UL	✓	✓	



# Light Commercial

## IPDU Vector

Toshiba-Carrier's Super Digital Inverter models use the new, vector controlled, Intelligent Power Drive Unit, which produces a power supply whose frequency and voltage provide superb control and energy efficiency.

This technology has allowed a much wider range of frequencies and voltages to be achieved.

Performance is further improved by the high-speed converter circuit which calculates the relationship between the compressor's windings and rotor through the currents drawn – allowing instantaneous optimization of the power supply to the compressor.

### The heart of the system

DC Inverter IC Board



DSP



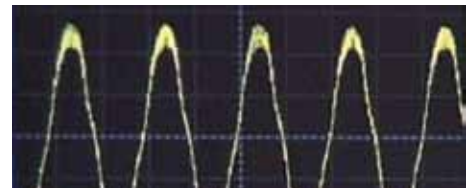
DC Twin Rotary Compressor



Brushless DC motor



Wave generated by a traditional inverter



Wave generated by the new vector IPDU inverter





Vector control inverter

DC Twin Rotary Compressor

Refrigerant R410A



## DC Twin Rotary Compressor: secured efficiency and energy saving

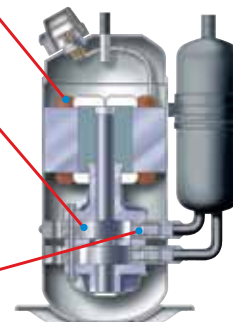
The Toshiba-Carrier DC Twin Rotary Compressor has a large capacity range, with an effective system of the power limitation, that allows a great reduction of the power consumed.

Thanks to this compressor, the desired comfort is reached quickly.

Improved motor windings deliver greater motor efficiency

More effective compression thanks to high-precision parts

Flow channels re-designed to deliver more efficient compression



## Easy installation

The outdoor units have been designed to satisfy any kind of installation needs. In fact, they're extremely compact and light.

In addition, the systems are very flexible and the condensing units can be positioned in situations which require long piping lengths. (up to 245 ft)





## Simplicity and beyond

The Super Digital Inverter range for commercial applications provides compact, light weight units with exceptional performance.

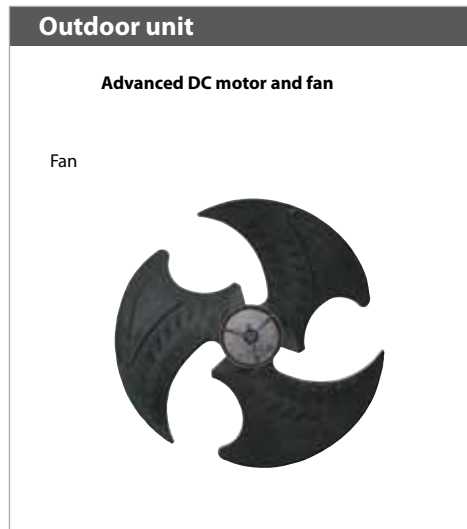
In addition, the Super Digital Inverter units boast SEER levels up to 21.0 and enables an even larger number of applications.

The wide range of indoor units is able to satisfy any kind of requirement and the enhanced DC twin rotary compressor delivers stable performance with less friction, making this system very quiet.

## A powerful breeze

The fan in the outdoor unit has been redesigned to deliver higher static pressure and a reduction in sound levels to offset a more compact heat exchanger.

New fan blades have been designed to reduce turbulence with "anti-eddy" protuberances and a reverse curved profile.





## Super Digital Inverter: high performance

The Super Digital Inverter range is dedicated to those who demand the best, without any compromise.

In fact, this system offers all the features of traditional systems, plus superior characteristics, such as excellent performance, high energy efficiency and wide operating range.



## Toshiba-Carrier units have everything under control



### Wired remote controller

RBC-AMT32UL

The standard remote controller can control an individual indoor unit or a group of 8 indoor units. The remote control allows the operating parameters to be set for the indoor unit. It also allows faults to be displayed and unit configurations to be set up.



### Simple wired remote controller

RBC-AS21UL

The simplified remote controller is connected in the same way as the standard remote controller, but offers reduced functionality. The remote controller does not have the lapse timer and the ability to set up the indoor unit. Unit fault codes are still displayed.



### Wireless remote controller kit for stand alone

TCB-AX21UL

The wireless remote controller and "around the corner" receiver can be used with all SDI indoor units. Two remote controllers can be used on the same unit. The receiver on the remote controller can be used to control the system. Fault codes are also displayed on receiver.



### Wired remote controller with schedule timer

RBC-AMS41UL

The weekly timer connects directly to the rear of an RBC-AM31 remote controller or a central remote controller. The timer allows the connected air conditioners to be enabled under a 7-day profile with up to three on/off periods per day.



### Wireless remote controller kit for 4-way cassette

RBC-AX31U(W)-UL

The wireless remote controller can be used with cassette units. Two remote controllers can be used on the same unit. The receiver on the remote controller can be used to control the system. Fault codes are also displayed on receiver.



### Wireless remote controller kit for ceiling

RBC-AX22CUL

The wireless remote controller can be used with the underceiling units. Two remote controllers can be used on the same unit. The receiver on the remote controller can be used to control the system. Fault codes are also displayed on receiver.

## SDI Control Options

Model Number	Description	Used with
RBC-AMT32UL	Wired remote controller	All SDI Models
RBC-AMS41UL	Wired remote control with schedule timer	All SDI Models
TCB-AX21UL	Wireless remote controller kit - "around the corner" (remote + receiver)	All SDI Models
RBC-AX31U(W)-UL	Wireless remote controller kit (remote + receiver)	SDI Cassettes
RBC-AX22CUL	Wireless remote controller kit (remote + receiver)	SDI Underceiling

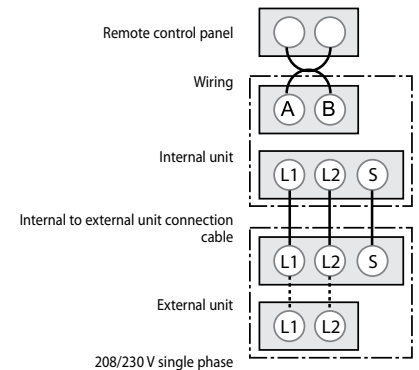
## TCC Link. Toshiba-Carrier simplicity

TCC Link controls have been projected to ensure an easy installation and a simple maintenance.

The number of wires connecting the internal and the external units has been reduced: from 3 to only 2.

In this way, the installation is much easier and the possibility of mistake is greatly reduced.

### System Wiring



## TCC Link. Flexibility defined

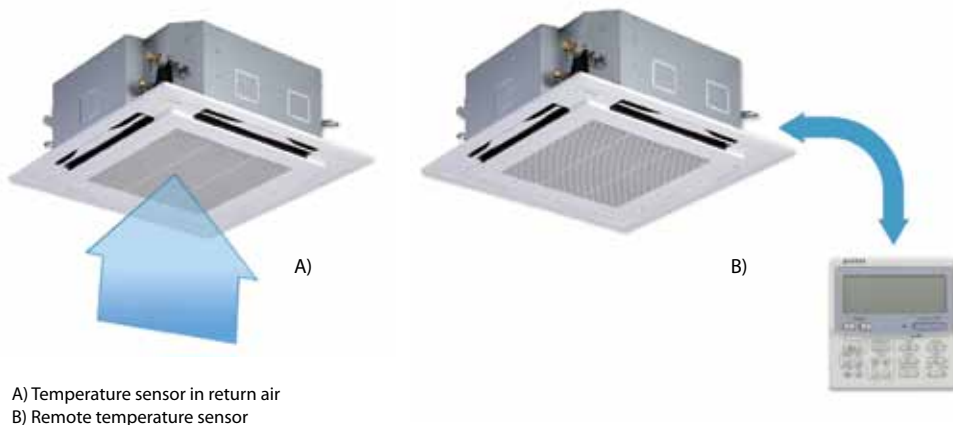
The return air (room) temperature sensor can be located in different positions unlike the conventional units.

It can be located remotely and independently, on the control panel, or even on the infrared remote control.

With a conventional indoor unit, when subject to wide variations of temperature (ie: close to a door in a public building), reacting to these fluctuations can cause overloading.

In this case, moving the sensor from the unit to the remote control overcomes the problem.

An additional benefit is that the desired temperature is achieved where the remote control is which is closer to the occupants that should benefit from the system comfort levels.





R-410A HEAT PUMPS

ECO-DRIVING COMPRESSORS



## Super Digital Inverter Outdoor unit

The best SEER values in its class

Wide operating range

### Features

The seasonal and the rated efficiencies are among highest in the industry. The air management system has been optimized: high efficiency fan motors, larger fans and new fan grille design also contribute to the exceptional energy performance. Piping and operating limits improved. The new system can work at extremely low temperatures, in cooling and heating. Piping lengths up to 245 feet.

### Key features

Among the best SEER values in the industry.

The structure and magnetic action of the new Eco-driving twin-rotary compressors provide excellent energy performance at full load as well as in partial load conditions (operation down to 10 rps).

Longer pipe runs, up to 245' length and 100' elevation for increased installation flexibility.

Wide operating range: down to 5° F\* in cooling mode and down to -4° F in heating mode

The Toshiba-Carrier "anti-ice" circuit prevents the fan from snow build-up in the winter.



\* with field fabricated wind baffle



**R-410A HEAT PUMPS**

**SUPER DIGITAL INVERTER**

**INNOVATIVE GRILLE DESIGN**

## SP\_UT Cassette

### Features

This Cassette is unobtrusive and flexible and can easily blend in with any room interior. Thanks to an innovative grille design, it grants uniform air distribution, providing total comfort. This system is ideal for small commercial applications.

### Key features

Light-weight unit, for easy and quick installation.

Built-in condensate pump.

Simple maintenance, thanks to the Self-cleaning function.

Individual setting of louver position:  
3 different Swing modes: standard, diagonally opposite, turn-around.

Optional wireless remote controller kit:  
RBC-AX31U(W)-UL.

Uniform air distribution

Light and easy to install

Three different mode settings



30, 36 KBTU 4-way cassette

### Technical specifications heat pump

System Size		18	24	30	36	42
Outdoor unit		RAV-SP180AT2-UL	RAV-SP240AT2-UL	RAV-SP300AT2-UL	RAV-SP360AT2-UL	RAV-SP420AT2-UL
Indoor unit		RAV-SP180UT-UL	RAV-SP240UT-UL	RAV-SP300UT-UL	RAV-SP360UT-UL	RAV-SP420UT-UL
Cooling Rated Capacity	BTUH	19,000	25,000	32,000	36,400	40,500
SEER		20.5	20.7	21.0	21.0	19.0
Heating Rated Capacity	BTUH	18,800	26,000	33,400	36,000	46,000
HSPF		11.5	9.5	11.0	11.9	10.3
Cooling Outdoor DB (Min - Max)	°F	23 - 109.4 (5 with wind baffle)				
Heating Outdoor WB (Min - Max)	°F	-4 - 59	-4 - 59	-4 - 59	-4 - 59	-4 - 59
Cooling Indoor DB (Min - Max)	°F	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6
Heating Indoor DB (Min - Max)	°F	59 - 86	59 - 86	59 - 86	59 - 86	59 - 86
Total Piping Length	ft.	164'	164'	246'	246'	246'
Voltage		208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Outdoor unit						
Dimensions (w x h x d)	In	30.7 x 21.7 x 11.4	35.4 x 35.0 x 12.6	35.4 x 52.8 x 12.6	35.4 x 52.8 x 12.6	35.4 x 52.8 x 12.6
Net Weight	lbs.	98	114.5	211.5	211.5	211.5
Sound Pressure dBa	Clg/Htg	48/49	49/50	50/51	52/52	52/52
Indoor unit						
Unit Dimensions (w x h x d)	In	33.1 x 10.1 x 33.1	33.1 x 10.1 x 33.1	33.1 x 12.6 x 33.1	33.1 x 12.6 x 33.1	33.1 x 12.6 x 33.1
Grille Dimensions (w x h x d)	In	37.4 x 1.2 x 37.4	37.4 x 1.2 x 37.4	37.4 x 1.2 x 37.4	37.4 x 1.2 x 37.4	37.4 x 1.2 x 37.4
Unit Net Weight	lbs.	44	44	53	53	53
Number of Fan Speeds		3	3	3	3	3
Sound Pressure (h/m/l)	Clg	37/35/34	39/35/34	46/40/36	47/41/38	47/41/38
Sound Pressure (h/m/l)	Htg	37/35/34	39/35/34	46/40/36	47/41/38	47/41/38

h/m/l = high / medium / low speed



**R-410A HEAT PUMPS**

**SUPER DIGITAL INVERTER**

**UNDERCEILING UNITS**

Low noise levels

Slim-line design

Automatic louver control plus auto-swing

**SP\_CT  
Underceiling**

**Features**

These underceiling units are the ideal solution for offices, classrooms and restaurants.

The automatic louver control and low noise levels are the key characteristics of this state-of-the-art unit.

**Key features**

It operates at only 34 dB(A) (in 18K) – much quieter than conventional units, thanks to its new design.

Optimum louver control: the air flow angle is automatically set to the most suitable setting, and an automatic swing mode ensures air flow reaches all areas of the room.

Optional wired remote controller:  
RBC-AMT32UL.

Optional wireless remote controller kit:  
RBC-AX22CUL.

Optional condensate pump kit:  
TCB-DP22CUL.



30, 36 KBTU underceiling

**Technical specifications heat pump**

System Size		18	24	30	36	42
Outdoor unit		RAV-SP180AT2-UL	RAV-SP240AT2-UL	RAV-SP300AT2-UL	RAV-SP360AT2-UL	RAV-SP420AT2-UL
Indoor unit		RAV-SP180CT-UL	RAV-SP240CT-UL	RAV-SP300CT-UL	RAV-SP360CT-UL	RAV-SP420CT-UL
Cooling Rated Capacity	BTUH	17,000	23,600	30,000	36,000	41,000
SEER		17.0	19.5	20.6	20.4	18.8
Heating Rated Capacity	BTUH	19,000	28,800	29,800	38,000	44,500
HSPF		10.8	10.3	8.5	11.0	11.0
Cooling Outdoor DB (Min - Max)	°F	23 - 109.4 (5 with wind baffle)				
Heating Outdoor WB (Min - Max)	°F	-4 - 59	-4 - 59	-4 - 59	-4 - 59	-4 - 59
Cooling Indoor DB (Min - Max)	°F	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6	69.8 - 89.6
Heating Indoor DB (Min - Max)	°F	59 - 86	59 - 86	59 - 86	59 - 86	59 - 86
Total Piping Length	ft.	164'	164'	246'	246'	246'
Voltage		208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
<b>Outdoor unit</b>						
Dimensions (w x h x d)	In	30.7 x 21.7 x 11.4	35.4 x 35.0 x 12.6	35.4 x 52.8 x 12.6	35.4 x 52.8 x 12.6	35.4 x 52.8 x 12.6
Net Weight	lbs.	98	144.5	211.5	211.5	211.5
Sound Pressure dBa	Clg / Htg	48/59	49/50	50/51	52/52	52/52
<b>Indoor unit</b>						
Dimensions (w x h x d)	In	35.8 x 8.3 x 26.8	46.5 x 8.3 x 26.8	62.8 x 8.3 x 26.8	62.8 x 8.3 x 26.8	62.8 x 8.3 x 26.8
Net Weight	lbs.	46	55	73	73	73
Number of Fan Speeds		3	3	3	3	3
Sound Pressure (h/m/l)	Clg	40/37/34	42/40/37	45/42/38	47/44/40	47/44/40
Sound Pressure (h/m/l)	Htg	40/37/34	42/40/37	45/42/38	47/44/40	47/44/40

h/m/l = high / medium / low speed





## SP\_2KRT High-wall

### Features

With its attractive and slim-line design, this high-wall is suitable for offices, restaurants and other applications where elegance is required.

### Key features

With its slim design, this compact and stylish unit blends with any room setting.

Auto louver mode allows for optimum air distribution throughout.

Wireless controller included.

Optional wired controller RBC-AMT32UL.

**R-410A HEAT PUMPS**

**SUPER DIGITAL INVERTER**

**STYLISH DESIGN**

**Slim design**

### Technical specifications **heat pump**

System Size		18	24
Outdoor unit		RAV-SP180AT2-UL	RAV-SP240AT2-UL
Indoor unit		RAV-SP180KRT-UL	RAV-SP240KRT-UL
Cooling Rated Capacity	BTUH	18,000	25,000
SEER		19.5	16.7
Heating Rated Capacity	BTUH	19,000	26,400
HSPF		11.5	9.8
Cooling Outdoor DB (Min - Max)	°F	23 - 109.4 (5 with wind baffle)	23 - 109.4 (5 with wind baffle)
Heating Outdoor WB (Min - Max)	°F	-4 - 59	-4 - 59
Cooling Indoor DB (Min - Max)	°F	69.8 - 89.6	69.8 - 89.6
Heating Indoor DB (Min - Max)	°F	59 - 86	59 - 86
Total Piping Length	ft.	164'	164'
Voltage		208/230-1-60	208/230-1-60
Outdoor unit			
Dimensions (w x h x d)	In	30.7 x 21.7 x 11.4	35.4 x 35.0 x 12.6
Net Weight	lbs.	98	144.5
Sound Pressure dBa	Clg / Htg	48/49	49/50
Indoor unit			
Dimensions (w x h x d)	In	41.3 x 12.6 x 9.0	41.3 x 12.6 x 9.0
Net Weight	lbs.	31	31
Number of Fan Speeds		3	3
Sound Pressure (h/m/l)	Clg	43/41/38	46/41/38
Sound Pressure (h/m/l)	Htg	43/41/38	46/41/38

h/m/l = high / medium / low speed

# TOSHIBA

---

## Carrier

