TAKING OMFORT TO A WHOLE NEW DIMENSION

CRANNIN



EXCELLENCE IN AIR CONDITIONING

TAKING OMFORT TO A WHOLE NEW DIMENSION



The expectations of an air conditioning system have evolved in the last few years. Today advanced comfort has to go hand in hand with reduced energy and maintenance cost, combined with maximized simplicity and operational flexibility.

SMMS-e has the right answer to all of these requirements. It encompasses all of the innovations, experience and knowledge from the past and utilizes new technologies to create a product that ensures its place within the market, as one of the industries leaders in providing, highly efficient solutions to the market, whilst ensuring maximum end user comfort.



FFICIENCY LOW OPERATION COST

In 2004, Toshiba launched into the market an ALL inverter VRF systems that would revolutionize the industry and set a new benchmark in system efficiencies. Now in 2015, the all new SMMS-e system has taken this philosophy and again pushed the barriers of what is achievable. Thanks to Toshiba's unique compressor technology, re-designed heat exchanger and Toshiba's "intelligent flow" technology for perfect refrigerant management, energy costs are sent plummeting, while comfort remains as outstanding as ever!

ALL INVERTER INFINITE VARIABLE CONTROL TWIN ROTARY COMPRESSOR INTELLIGENT FLOW TECHNOLOGY ADVANCED HEAT EXCHANGER DESIGN WAVE TOOL

volution



COMFORT

The innovative evolution of the many technical components and controls, ensure an optimal balance of temperature, humidity and air freshness, whilst simultaneously realizing maximum energy efficiency, minimum operating costs and reduced CO_2 emissions.

> OPTIMISED HEATING & COOLING EXTENDED OPERATION RANGE SUPER SILENT PERFORMANCE SIMPLIFIED & EASY TO USE CONTROLS



RELIABILITY

Quality and reliability is at the heart of everything we do. Toshiba engineers are dedicated to finding the best product solutions for you, the end-user, investor and designer. All major components are engineered and manufactured by Toshiba, ensuring maximum performance, reliability and efficiency.

> DUAL VANE TECHNOLOGY COMPRESSOR BACK-UP DEDICATED OIL MANAGEMENT CDU MODULATION CONTROL IN-HOUSE ENGINEERING

CREATING BENEFITS AROUND



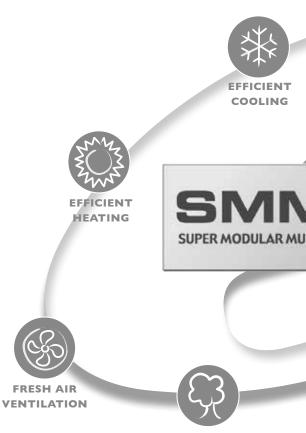
• Infinite comfort ... Achieved by fully controllable room temperature, a perfect alternative to traditional heating & cooling systems

• Infinite efficiency ... Low operating costs thanks to reduced installation costs and very high levels of efficiency via optimal load adjustment

• Infinite integration ... Cooling, heating, hot water, fresh air ventilation and door air curtain solutions, all perfectly and conveniently attuned to one another within a single system – and so easy to use!

• Infinite reliability ... Hassle-free operation based upon decades of experience and intensive testing program for all systems

• Infinite transparency ... Clearly defined billing so you can quickly review energy costs and consumption



OMFORT

ENVIRONMENTALLY FRIENDLY

4 | 🙋





• **Absolute customisation** ... A wide range of products ensure that the customers' requirements are fully addressed

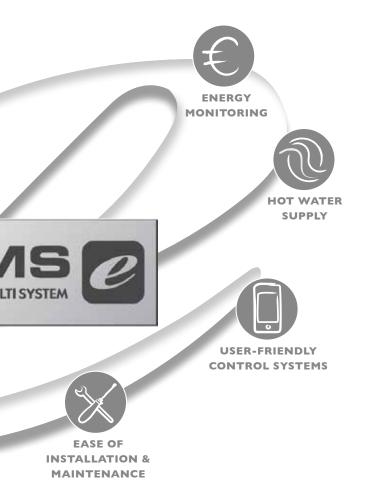
• **Absolute validation** ... SMMS-e has applied for EUROVENT certification and adheres to all current European legislation

• **Absolute control** ... Fully integrated controls network, allowing unlimited access to the system controls and its operation

• **Absolute flexibility ...** A high degree of system flexibility, aided by a fully flexible piping specification and an extremely compact modular design

• Absolute dependability ... Years of experience in developing technologies for optimised reliability and safety, including huge support network and back-up







• So simple ... One supplier – one point of contact for a total solution: cooling, heating, hot water, ventilation & controls

• So versatile ... Maximised installation flexibility

• So convenient ... Easy access for all service and maintenance needs

• So professional ... Intensive training and instruction offered by local TOSHIBA trained experts

• **So assessable ...** Simplified and swift commissioning, assisted by the all new Wave Tool App

59 THE WHOLE IS MORE THAN THE SUM OF ITS PARTS. **66**

Aristoteles





When Toshiba launched the industries Ist ALL inverter VRF system, it became a leader within its market. So when this design evolves into an even better, more efficient solution is due, not because of a single new feature, but because of the dedication shown to perfecting every key technology and component, which when brought together forms a product that again leads the way.

KEY TECHNOLOGIES

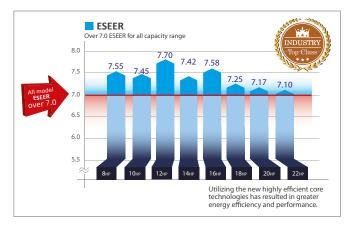
When viewed in isolation, not all that different from our rivals – granted. But, taken as a whole, a decisive, evolutionary step forward into a glorious new era and a new generation of excellence in air conditioning - SMMS-e.



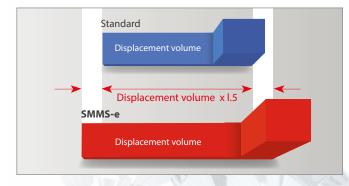
I. INNOVATIVE COMPRESSOR TECHNOLOGY

TOSHIBA's infinitely variable, inverter driven control can continually adjust in real time, the operating speed of the compressors. This ensures that the capacity output precisely matches that of the demand from the end user. The advantages of this control are optimised further by incorporating TOSHIBA's in-housed designed all inverter twin rotary compressors. The twin rotary design is one of the key technologies that has been continually developed by Toshiba, to ensure maximum performance and efficiency. This enables the new SMMS-e system to achieve class leading ESEER efficiency values, whilst still maintaining TOSHIBA's reputation of reliability.





Adopting the highly efficient new DC twin-rotary compressors with various technologies realized over 7.00 ESEER for all of capacity range





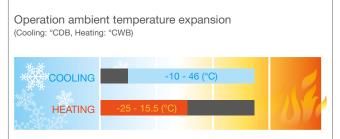
DUAL VANE TECHNOLOGY

• Newly developed in-house dual vane technology is unique to Toshiba's twin rotary compressors

• New design minimises pressure losses between high and low pressure chambers increasing system efficiency, whilst further enhancing compressor reliability

• Brand new "Diamond Like Carbon Coating" ensures maximum operation without the fear of increased mechanical wear and tear

THIS MEANS: MAXIMISING EFFICIENCY, HIGHER RELIABILITY – EVEN WHEN UNDER EXTREME CONDITIONS





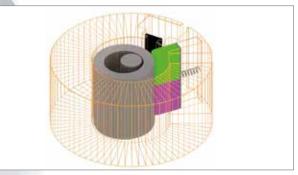
INCREASED COMPRESSOR DISPLACEMENT

 Increased compressor displacement extends the compressor's capacity output

• One single unit with two compressors can now achieve a capacity output of up to 22 HP

Increased operation range and a more precise control

THIS MEANS: MORE EFFICIENCY, REDUCED RUNNING COSTS AND LIGHTER UNITS



New dual vane and DLC technology ensures maximum performance and efficiency whilst ensuring Toshiba's legendary compressor reliability

2. INTELLIGENT FLOW TECHNOLOGY

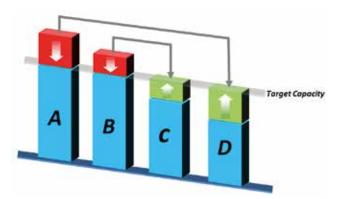
This unique control continually adjusts the operation of both indoor and outdoor units, based on the feedback from multiple sensors located throughout the system.

• Refrigerant flow to each indoor unit is precisely controlled by the outdoor unit, ensuring even distribution of capacity throughout the entire system.

• The evaporative and condensing temperature is continually adjusted automatically, to maintain an optimum indoor room temperature, regardless of the units load or its physical distance from the outdoor. This ensures optimum performance, whilst maximising system efficiency.



Excess capacity in units A & B can be re-distributed to units C & D, ensuring perfect operation throughout the entire system



Toshiba's "IFT" technology ensures that any surplus capacity can be re-distributed in order to achieve the optimum performance and efficiency throughout the entire system"

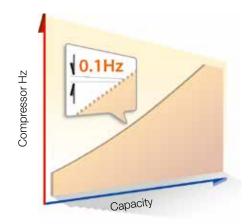
THIS MEANS: ALL YEAR ROUND COMFORT AND MAXIMUM ENERGY SAVINGS This unique technology ensures that the flow of refrigerant to the FCU's is precisely proportional to the demand of each individual indoor unit and where demand exceeds the output of the CDU, the refrigerant is evenly distributed throughout the indoor network, ensuring stable capacity regardless of the unit location within the building.

3. INFINITE VARIABLE CONTROL



This feature has been continually evolved and developed, since its inception by Toshiba engineers back in 2004 with the original SMMS system. The control has the ability to adjust the compressor rotational speed in a near seamless 0.1Hz steps. This control when matched with Toshiba's newest and latest Twin Rotary compressors, allows the system to respond precisely to the capacity needs of the end user, whilst minimizing energy losses.





THIS MEANS: MAXIMISED EFFICIENCY AND ENHANCED COMFORT THROUGH PRECISE CONTROL



4. OPTIMISED HEATING OPERATION

A key development for the new SMMS-e range is its ability to extend and in many cases eliminate the requirement for a full outdoor defrost operation. This new feature is based on a newly developed hot gas by-pass control, which when activated allows the compressors to provide the outdoor coil with an uninterrupted supply of high temperature refrigerant, whilst also extending the operation running time of the indoor units.

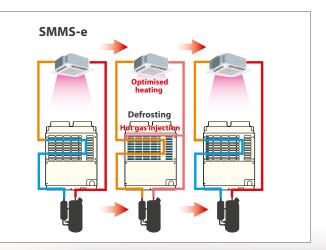
An additional benefit of this new feature is that the detection accuracy of when and for how long a outdoor defrost should occur, is greatly increased. This ensures that the operation of the system is optimised so that the heating output to the indoor rooms is maintained at a comfortable and continuous level.

THIS MEANS: ENHANCED COMFORT HAND IN HAND WITH TOP RELIABILITY AND SAFETY.



• Optimised Heating Operation – How does it work?

The new SMMS-e system incorporates a new control algorithm based on continually monitoring the status of the outdoor coil. Once the control senses that the outdoor coil is beginning to frost, the hot gas by-pass operation will start, melting any frost, whilst also allowing the indoor units to continue to provide heating to the occupants.







5. WAVE TOOL

L end and write data

The SMMS-e Wave Tool allows the user to read and write data directly from the outdoor unit using only their smart phone. Therefore mitigating the need to connect a PC or gaining access to the control board of the outdoor unit.

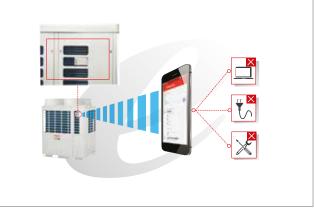
This tool, will allow the service and commissioning engineer to instruct and obtain key system information. This will not only simplify the commissioning of the system and the amount of time spent on-site, but also allows the servicing engineer the ability to quickly and easily send key system data via e-mail back to the office for analysis.

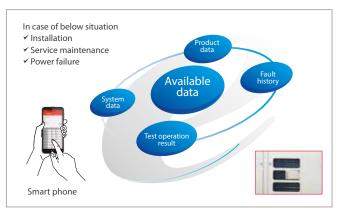
• Safe and quick configuration of the system via an android compatible device

No requirement to connect directly to the system

• Using Near Field Technology allows quick and wireless data transfer between two compatible devices

• Obtain product data, fault history, system data and test operation results via the unique monitoring function







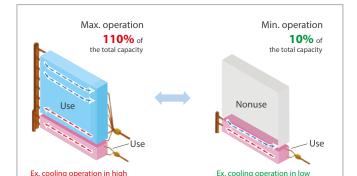
6. NEW INNOVATIVE HEAT EXCHANGER AND FAN BLADE DESIGN

• New 3-row heat exchanger design with reduced pipe size from 8 mm to 7 mm and an increase in the total number of passes, improves both system performance and efficiency

• 4-sided heat exchanger ensures maximum possible flow rate across the entire coil, maximizing system efficiency

• 3-way variable heat exchanger design, allows the CDU to select the most efficient heat exchanger size, which precisely matches the indoor capacity load

• New Sub cooling heat exchanger increase system operating performance and allows the total piping length to reach a total of 1,000 m



outdoor temperature

Variable heat exchanger

outdoor temperature



• New outdoor fan blade design includes a unique profile, ensuring smoother uninterrupted air flow

 New propeller design reduces sound pressure level whilst maximizing the air flow volume

• Outdoor fan motor now incorporates a 3-phase motor to maximise performance and efficiency, whilst reducing the minimum circuit amps value of the outdoor unit

THIS MEANS: QUIET OPERATION, MORE USER COMFORT AND EFFICIENCY.

4-way heat exchanger realizing balanced airflow

THIS MEANS: MORE EFFICIENCY, INCREASED ENERGY SAVINGS AND USER COMFORT

New anti-eddy projections

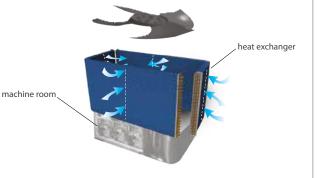
New profiles of the reverse-arc

on the back of the fan



shaped wings

Advanced blade shapes for a better air flow management







7. EXPANDED INSTALLATION FLEXIBILITY

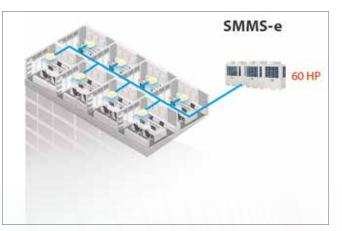
The new compact design of the Outdoor units gives increased performance that defies their compact module size. This delivers greater freedom in layout design and minimizes weight-related restrictions and allows for quicker installation.

- Very compact design with reduced footprint
- Capacity up to 22 HP can be covered with a single module, reducing pipe work and overall installation time
- Expanding the maximum combination from 48 to 60 HP in one system, with up to 64 connectable indoor units

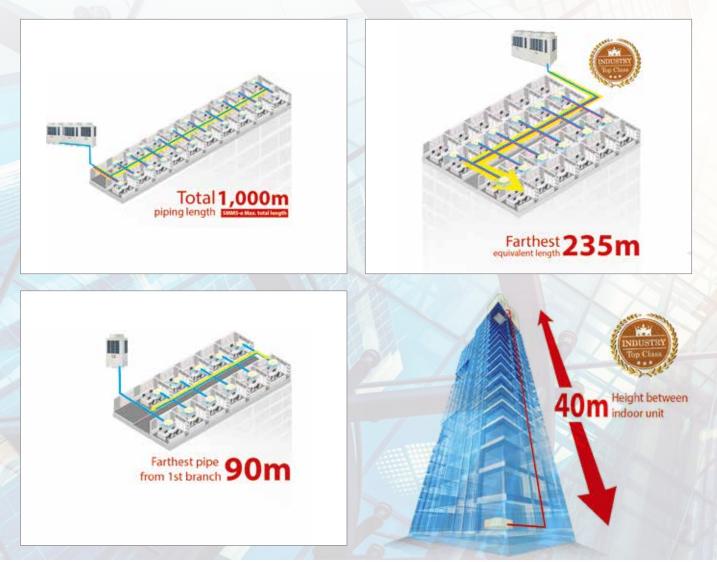
 Maximum piping length of 1,000 m, farthest equivalent length 235 m

 Maximum vertical distance between indoor units, which reaches up to 40 meters, equal to an entire 11-storied building





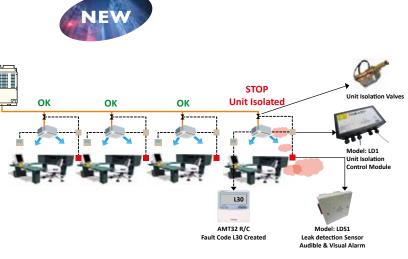
60 HP in one system, up to 64 connectable indoor units





8. REFRIGERANT LEAK DETECTION

As VRF systems become larger, supplying multiple indoor units, the refrigerant volume that flows within the system will increase. In the unlikely event of a refrigerant leak, it is possible that if the room is small enough the concentration level inside that room could become harmful to the occupant. The new "Refrigerant Leak Detection Products" will provide a solution to this potential issue, providing both an indication of a refrigerant leak (in accordance with EN378, where the refrigerant concentration level exceeds 0.44kg/m³) and the mechanical isolation of the affected unit. The products will also be fully CE certified.



9. "AIRS"....TOSHIBA'S NEW VRF DESIGN SOFTWARE

This new software "AIRS" has been completely redesigned to have a user friendly interface that allows the novice and expert users alike to create simple, yet detailed VRF system schematics

Depending on your client's needs, the high level of versatility of the new software, allows the user to choose the level of detail required. From a simple refrigerant piping schematic, which can be used to give your customer a quick quotation, to the more complex designs, which require the clients own building floor plans to be imported into the software. The software also allows the user to specify the pricing strategy for each project and can create additional reports, including electrical wiring diagrams and all Central and BMS controls schematics. Once complete the user can then if required produce a professional report, summarising the project in detail, which can then be outputted to the client in a PDF format, for simple email transactions or to more complex files, such as AutoCAD



As well as standard PC packages, the "AIRS" software is also fully compatible with Surface Pro 2 & 3 Tablets and is Windows 7 and 8.1 compatible.



THE ALL NEW SMMS-e OUTDOOR..... THE PERFECT BALANCE OF POWER AND CONTROL

With their integrated heat pump technology, the SMMS-e outdoor units aren't just incredibly efficient, they're environmentally compatible and sustainable, too!

Eight distinct models are currently available in the 8 to 22 HP output range, combining together to bring about best-in-class installation flexibility. Talk about packing a punch!

НР	Model name (MMY-)	Cooling capacity (kW)	Heating capacity (kW)	Appearance
8 HP	MAP0806HT8P-E	22,40 kW	25,00 kW	
10 HP	MAP1006HT8P-E	28,00 kW	31,50 kW	
12 HP	MAP1206HT8P-E	33,50 kW	37,50 kW	
14 HP	MAP1406HT8P-E	40,00 kW	45,00 kW	
16 HP	MAP1606HT8P-E	45,00 kW	50,00 kW	
18 HP	MAP1806HT8P-E	50,40 kW	56,00 kW	
20 HP	MAP2006HT8P-E	56,00 kW	63,00 kW	
22 HP	MAP2206HT8P-E	61,50 kW	64,00 kW	
24 НР	MAP2416HT8P-E	67,00 kW	75,00 kW	
26 НР	MAP2616HT8P-E	73,50 kW	82,50 kW	
28 HP	MAP2816HT8P-E	78,50 kW	87,50 kW	
30 HP	MAP3016HT8P-E	85,00 kW	95,00 kW	
32 HP	MAP3216HT8P-E	90,00 kW	100,00 kW	





- Modular Individual modules with an output of up to 22 HP
- **Comprehensive** 27 standard combinations
- Space-saving Smaller footprint
- **Powerful** Up to 60 HP in a single system!

НР	Model name (MMY-)	Cooling capacity (kW)	Heating capacity (kW)	Appearance					
34 HP	AP3416HT8P-E	95,40 kW	106,00 kW						
36 HP	AP3616HT8P-E	101,00 kW	113,00 kW						
38 HP	AP3816HT8P-E	106,50 kW	114,00 kW						
40 HP	AP4016HT8P-E	112,00 kW	126,00 kW						
42 HP	AP4216HT8P-E	117,50 kW	127,00 kW						
44 HP	AP4416HT8P-E	123,00 kW	128,00 kW						
46 HP	AP4616HT8P-E	130,00 kW	145,00 kW						
48 HP	AP4816HT8P-E	135,00 kW	150,00 kW						
50 НР	AP5016HT8P-E	140,40 kW	156,00 kW						
52 HP	AP5216HT8P-E	146,00 kW	163,00 kW						
54 HP	AP5416HT8P-E	151,50 kW	164,00 kW						
56 HP	AP5616HT8P-E	157,00 kW	176,00 kW						
58 HP	AP5816HT8P-E	162,50 kW	177,00 kW						
60 HP	AP6016HT8P-E	168,00 kW	178,00 kW						

HIGH EFFICIENCY / HEATING CAPACITY PRIORITY MODELS

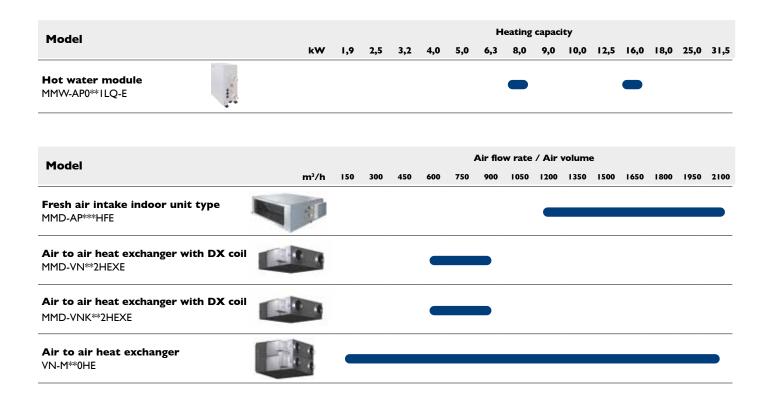
НР	Model name (MMY-)	Cooling capacity (kW)	Heating capacity (kW)	Appearance
20 HP	MMY-AP2026HT8P-E	56,00 kW	63,00 kW	
22 HP	MMY-AP2226HT8P-E	61,50 kW	69,00 kW	
36 HP	MMY-AP3626HT8P-E	100,50 kW	112,50 kW	
38 HP	MMY-AP3826HT8P-E	107,00 kW	120,00 kW	
40 HP	MMY-AP4026HT8P-E	113,50 kW	127,50 kW	
42 HP	MMY-AP4226HT8P-E	120,00 kW	135,00 kW	
44 HP	MMY-AP4426HT8P-E	125,00 kW	140,00 kW	
54 HP	MMY-AP5426HT8P-E	152,00 kW	171,00 kW	



MULTIPLE DESIGNS.....COMPLETE SOLUTION

Room temperature goes state-of-the-art, when delivered by SMMS-e. Be it a pleasing coolness in the height of summer or the cosy warmth in the chill of winter. SMMS-e creates a perfect environment that's conducive to people's inherent wellbeing. Regardless if the installation is in a busy shop, office or a tranquil country spa hotel, no other manufacturer offers such an extensive range of indoor units that can adjust and meet the most diverse of requirements. Consistently and creatively putting you where you need to be – in your comfort zone!

Model	HP kW	0,6 1,7	0,8 2,2	1,0 2,8	1,3 3,6	1,7 4,5	2,0 5,6	2,5 7,1	3,0 8,0	3,2 9,0	4,0 11,2	5,0 14,0	6,0 16,0	8,0 22,4	10,0 28
CASSETTE TYPES Compact 4-way cassette type (600x600) MMU-AP()MH-E	1														
4-way cassette type MMU-AP()HP-E	*														
2-way cassette type MMU-AP()WH															
I-way cassette type MMU-AP()YH/SH-E															
DUCT TYPES Slim duct type MMD-AP()SPH-E															
Concealed duct type MMD-AP()BH(P)-E	F.														
Concealed duct high static pressure type MMD-AP()6HP-E															
Fresh air intake indoor unit type MMD-AP()HFE												•			
Concealed duct high static pressure type MMD-AP()HP-EU	F.														
CEILING TYPES MMC-AP()HP-E															
HIGH WALL TYPES Series 4 MMK-AP()4MH(P)-E															
Series 3 MMK-AP()3H-E															
FLOOR STANDING TYPES Floor standing concealed type MML-AP()BH-E															
Floor standing type MMF-AP()H-E															
Console type MML-AP()NH-E															



Optional Accessories

DX Kit

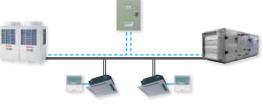
Allows the connection of a 3rd party AHU to be connected to all Toshiba VRF product, including the new SMMS-e, using a locally supplied DX coil.

Leak Detection

Allows the identification of a refrigerant leak in accordance with EN378. If a leak is detected both a visual and audible alarm is raised. The effected indoor unit is then isolated and an alarm is shown on the local wired remote controller.

0 – IOV DX Interface Kit

Currently under development for SMMS-e, this new product when launched will provide the user with the ability to use a Building management system (BMS) to control the capacity, mode and operation of the system. **Available March 2016**









UPPING THE COMFORT LEVELS BY GETTING THE CONTROLS RIGHT

Comfort, economic efficiency and safety can be further maximised with modern control mechanisms. Whether wired or remotely controlled units, Web-based control devices or elegant touch screen systems, the important thing is to achieve the right temperature at the right time and at the right place! It's all about balance – and we've got it just right.

WIRED REMOTE CONTROLS	WIRELESS REMOTE CONTROLS
Lite-Vision Plus RBC-AMS51E-ES, RBC-AMS51E-EN	
Standard Remote Controller RBC-AMT32E	
	Receiver kit for the installation
Remote Controller with weekly timer RBC-AMS4IE	TCB-AX32E2
Simple wired remote controller RBC-AS41E	Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX33CE
CENTRAL CONTROLLERS	Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX32U(W)-E
Central remote controller BMS-CM1280TLE	Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX23UW(W)-E
Schedule Timer TCB-EXS21TLE	CONNECTABLE OPEN NETWORK
ON-OFF controller TCB-CC163TLE2	BACnet® BMS-IFBN640TLE BMS-STBN10E: Software, BMS-LSV9E: Server
SMART Touch Controller RBC-TBPTS	LonWORKS® TCB-IFCN641TLE
BMS CONTROLLERS	Modbus® TCB-IFMB641TLE
Smart BMS Manager BMS-SM1280ETLE	





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