CDL
Cool Designs Ltd

Pocket Quick Reference Guide on the TOSHIBA

SMMSu Two Pipe - Heat Pump VRF System

Air Conditioning Design & Distribution

In 2021 Toshiba air conditioning, introduced a new award winning, 2-pipe Heat Pump VRF system, the **SMMSu**

The aim of this pocket guide is to assist engineers in understanding the configuration and refrigerant charge required to obtain optimum performance.

For engineers who are familiar with Toshiba 2-pipe heat pump VRF systems, the new SMMSu units requires new additional configurations setting **PRIOR** to running the equipment.

For installation details, location, space required, wiring and pipe configuration, please refer to the installation manual provided with each outdoor (CDU) unit.

Pre-commissioning.
Electrical.

1) Confirm that the power supply at each outdoor unit is correct, three phase and neutral 380 – 400 volts 50 Hz AC, (Fig1 & fig2).
Fuse sizes are dependent on unit size and current electrical regulations, (IET 18th edition).

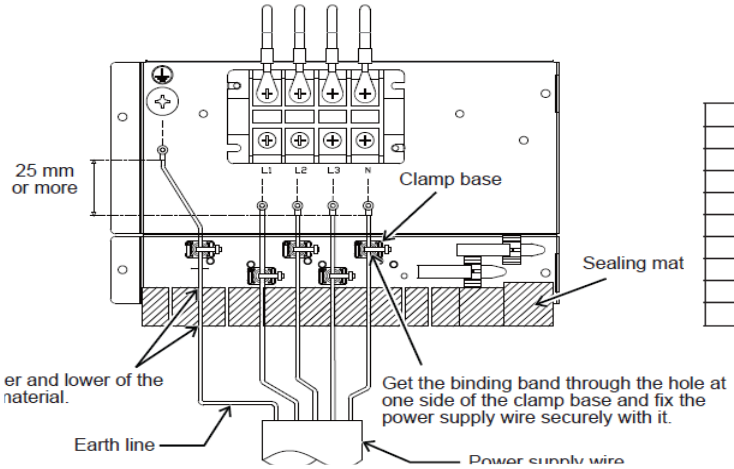


fig 1

MCA: Minimum Circuit Amps
MOCP: Maximum Overcurrent Protection (Amps)

Model name	Phase supply	MCA	MOCP
MMY-MUP0801 *	3N~ 50Hz 380-400-415V	17	20
MMY-MUP1001 *		23	32
MMY-MUP1201 *		27	32
MMY-MUP1401 *		31	40
MMY-MUP1601 *		34	40
MMY-MUP1801 *		38	50
MMY-MUP2001 *		40	50
MMY-MUP2201 *		57	63
MMY-MUP2401 *		60	80

fig 2

When multiple outdoor units are “modularised” to form a system, the outdoor units (CDU) must be of the same generation, MMY-MUP####HT8P-E, a “system” can comprise of up to 5 CDU’s. (8hp to 120hp). Individual power supply must be applied to each CDU.

CDU’s are electrically linked together via a two core screened cable 1.0mm to 1.5mm, connected at terminals, U5 & U6 (**Uc Link)**.

CDU’s are electrically linked to the indoor units (FCU), via a two core screened cable 1.0mm to 1.5mm (up to 1,000m) connected at terminals, U1 & U2 (**Uv**)

Systems controlled via Central Remote Controller or BMS Interface, are electrically connected to the “HEADER” CDU terminals U3 & U4 (**Uh**) via a 1.00 to 1.5mm, two core screened cable up to a maximum length of 1,000m, over 1,000m to 2,000m a 2.5mm two core cable should be used.

CDU terminals

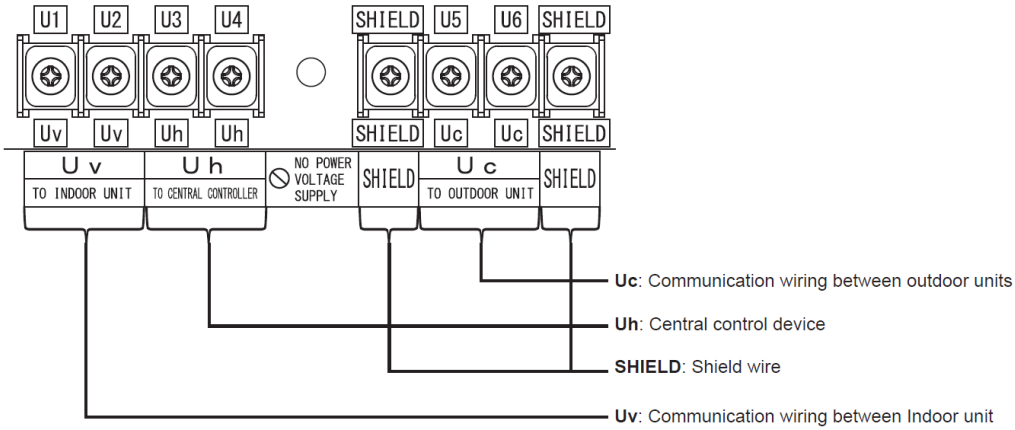
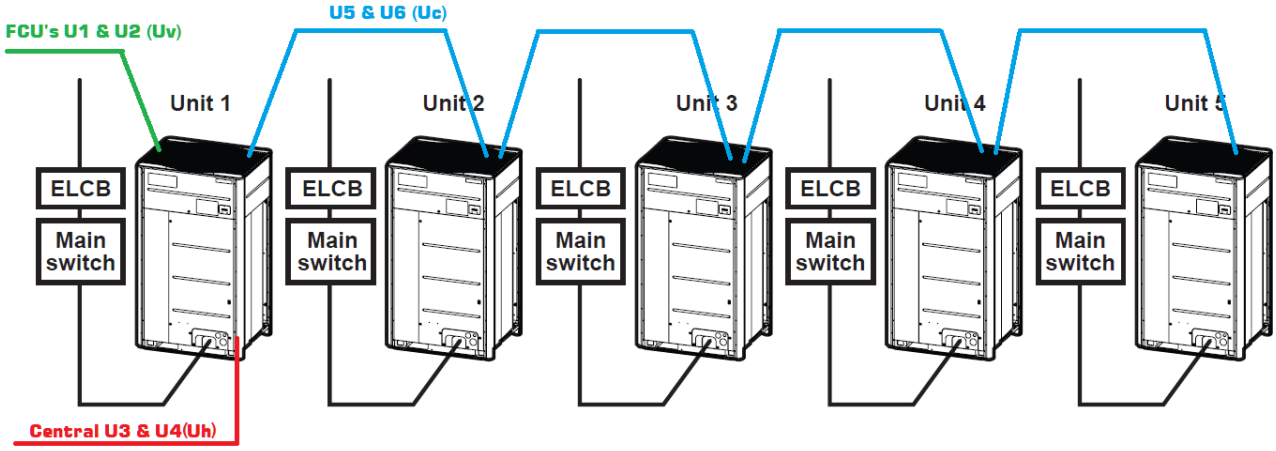


fig 3



SMMSu Maximum of 5 Units
fig 4

Refrigeration

Prior to carrying out any pressure testing or evacuation, make sure that both Liquid and Suction valves are **FULLY CLOSED.**

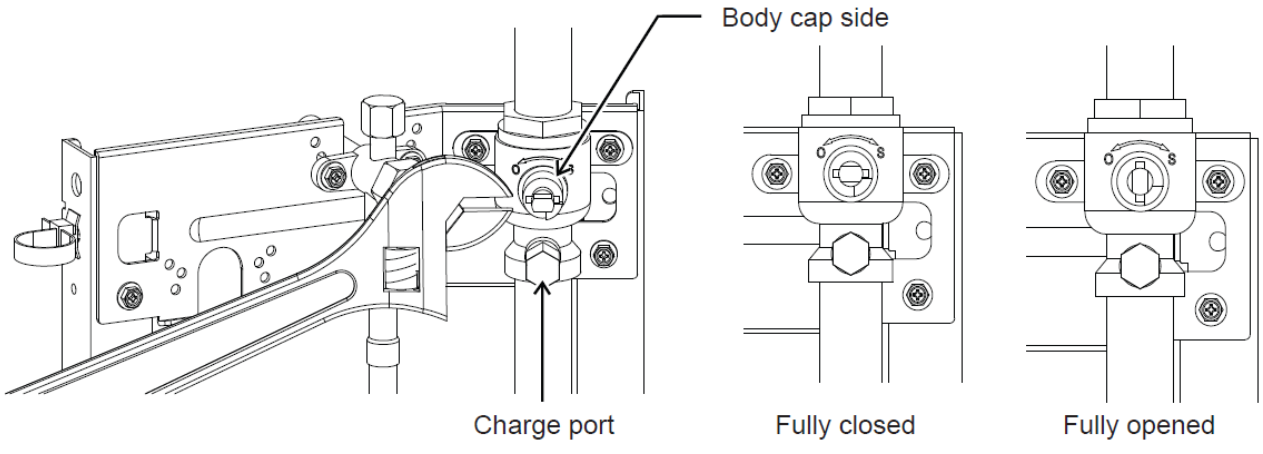


fig 5

Liquid and Suction connections are both braze type, make sure to "***WET RAG***" the service valves whilst brazing, failure to do so could damage the seals within the service valves causing refrigerant loss.

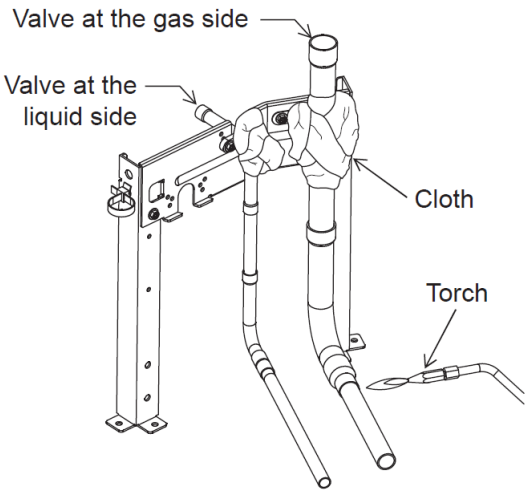


fig 6

1) Connect a suitable R410A refrigerant manifold to ***BOTH*** service valves, Liquid and Suction.

2) Carry out a complete pressure test using suitable Oxygen Free Nitrogen, (**OFN**) in accordance with current F-Gas regulations and in-line with IOR Good Refrigerant Practices.

It is recommended to apply a pressure of 3Bar, for 5 minutes or more, increase the pressure to 15Bar and hold for 5 minutes or more, this will detect serious leaks.
Increase the pressure over a period of time to 41.5Bar, holding this pressure for a period of 24 hours.
If environmental temperatures change during the testing period, pressures could change by approx 0.1Bar (1.4PSIG) per 1°C.

3) Close off the manifold gauge valves and disconnect the **OFN** cylinder.

4) Replace the **OFN** cylinder with a suitably sized vacuum pump (6cfm or better).

5) Evacuate the system to the best vacuum, weather conditions will allow, ideally between 2 Torr (2.7mb) to 4 Torr (5.5mb), with a duration of 2 to 3 hours

6) Once a suitable vacuum has been achieved, remove the vacuum pump, leaving the manifold gauge connected and let the system stand for 1 hour or more, checking the vacuum gauge if there is no loss move on, if there is a pressure loss, identify the potential cause, rectify and repeat.

7) Replace the vacuum pump with suitable virgin R410A refrigerant cylinder/s.

8) Charge the system with the calculated quantity of virgin R410A refrigerant.

Calculations and relevant correction charts can be found further on in this guide.

Refrigerant charge for VRF equipment is critical to obtain optimum performance.

This pocket guide will take you through the step by step guidance in calculating the correct refrigerant charge for your SMMSu system.

Working out the correct refrigerant charge requires;

1) The outdoor equipment, quantity and size, (Compensation/Correction/Trim Charge).

(Units have to be in the same system i.e. joined by pipe and cable with another unit,forming a modularized system)

Different sizes and combinations of outdoor units, have a specific Compensation/Correction/Trim charge per combination

2) The quantity and size of indoor units installed.

(Qty and size of Standard indoor units, Air to Air Heat Exchangers, Fresh Air Units)

Indoor Unit Capacity Rank	003	005	007	008	009	010	012	014	015	018	020	024	027	030	036	048	056	072	096
Capacity Code (Equivalent to HP)	0.3	0.6	0.8	0.9	1	1.1	1.25	1.5	1.7	2	2.25	2.5	3	3.2	4	5	6	8	10
Corrective Amount of Refrigerant (kg)	0.2							0.4							0.6			1.0	

fig 7

Corrective amount of refrigerant for High Efficiency 4-way Blow Cassette - ONLY										
Indoor Unit Capacity Rank	009	012	015	018	024	027	030	036	048	056
Capacity Code (Equivalent to HP)	1	1.25	1.7	2	2.5	3	3.2	4	5	6
Corrective Amount of Refrigerant (kg)	0.2		0.6							

fig 8

Corrective Amount of Refrigerant for Hot Water Module		
Indoor Unit Capacity Rank	024	048
Capacity Code (Equivalent to HP)	2.5	5
Corrective Amount of Refrigerant (kg)	0.2	

fig 9

Corrective Amount of Refrigerant for DX Coil Interface											
Capacity Code (Equivalent to HP)	8	10	16	18	20	32	36	40	48	54	60
Corrective Amount of Refrigerant (kg)	1.4	1.8	2.9	3.2	3.6	5.8	6.5	7.2	8.6	9.7	10.8

fig 10

3) Correction for Diversity

Total up the hp of all the indoor units on the system multiply by the hp of the outdoor units, result is % diversity.

Example 3 x MMK-UP0181HP-E (2hp high wall units) = 6hp, connected to 1 x MMY-MUP1001HT8P-E (10hp)

6 x 10 = 60% Diversity = -2.0kg

Corrective Amount of Refrigerant According to the Outoor Unit Diversity	
Diversity D (%)	Corrective Amount of Refrigerant (kg)
50% < D < 60%	-2.5
60% < D < 70%	-2.0
70% < D < 80%	-1.5
80% < D < 90%	-1.0
90% < D < 95%	-0.5
98% < D	0

fig 11

4) The lengths and sizes of the liquid line installed.

(Linear length only, i.e. straight pipes only, do not count bends or fittings.)

Pipe dia. Liquid Line	inch	1/4”	3/8”	1/2”	5/8”	3/4”	7/8”	1”
Additional Refrigerant Amount per m	kg/m	0.025	0.055	0.105	0.160	0.250	0.370	0.470

fig 12

With the above information it is easy to calculate the additional refrigerant charge for each system.

This guide will breakdown the formula into easy steps using data from the supplied charts, (figs.7,8,9,10,11,12,13)

1) The outdoor equipment, quantity and size, (Compensation/Correction/Trim Charge).

Individual outdoor units can be joined together via pipes and electric's, forming a modularized system, there is a specific correction/trim charge for each combination of units, firstly identify the individual units which are forming the system **= fig 13**

Example 1. 1 x MMY-MUP2401HT8P-E + 2 x MMY-MUP 1401HT8P-E = 52HP system which has a Compensation/Correction/Trim charge of 10.1kg.

Using the chart below identify the combination of units and utilise the Compensation/Correction/Trim charge in the right hand column (kg).

System HP	Combination HP					Compensation by System HP (kG)
8	8	-	-	-	-	1.5
10	10	-	-	-	-	1.7
12	12	-	-	-	-	2.3
14	14	-	-	-	-	2.3
16	16	-	-	-	-	1.0
18	18	-	-	-	-	2.0
20	20	-	-	-	-	4.0
22	22	-	-	-	-	5.0
24	24	-	-	-	-	5.5
26	14	12	-	-	-	4.6
28	14	14	-	-	-	4.6
30	18	12	-	-	-	4.3
32	20	12	-	-	-	6.3
34	20	14	-	-	-	6.3
36	24	12	-	-	-	7.8
38	24	14	-	-	-	7.8
40	20	20	-	-	-	8.0
42	24	18	-	-	-	7.5
44	24	20	-	-	-	9.5
46	24	22	-	-	-	10.5
48	24	24	-	-	-	11.0
50	24	14	12	-	-	10.1
52	24	14	14	-	-	10.1
54	20	20	14	-	-	10.3
56	24	20	12	-	-	11.8
58	24	20	14	-	-	11.8
60	24	24	12	-	-	13.3
62	24	24	14	-	-	13.3
64	24	20	20	-	-	13.5

System HP	Combination HP					Compensation by System HP (kG)
66	24	22	20	-	-	14.5
68	24	24	20	-	-	15.0
70	24	24	22	-	-	16.0
72	24	24	24	-	-	16.5
74	24	24	14	12	-	15.6
76	24	24	14	14	-	15.6
78	24	20	20	14	-	15.8
80	24	24	20	12	-	17.3
82	24	24	20	14	-	17.3
84	24	24	24	12	-	18.8
86	24	24	24	14	-	18.8
88	24	24	20	20	-	19.0
90	24	24	22	20	-	20.0
92	24	24	24	20	-	20.5
94	24	24	24	22	-	21.5
96	24	24	24	24	-	22.0
98	24	24	24	14	12	21.2
100	24	24	24	14	14	21.2
102	24	24	20	20	14	21.3
104	24	24	24	20	12	22.8
106	24	24	24	20	14	22.8
108	24	24	24	24	12	24.3
110	24	24	24	24	14	24.3
112	24	24	24	20	20	24.5
114	24	24	24	22	20	25.5
116	24	24	24	24	20	26.0
119	24	24	24	24	22	27.0
120	24	24	24	24	24	27.5

fig 13

2) The quantity and size of indoor units installed.

(Qty and size of Standard indoor units, Air to Air Heat Exchangers, Fresh Air Units)

Additional refrigerant is added to the system for each indoor unit connected in the system, this is worked out dependant on the type of indoor unit installed;

Fresh Air Intake Units, MMD-UP0481/0721/0961/1121/1281HFP-E/E1 - 0kg/HP

Standard Units, MMK, MMU (MH,HP,WH,YH), MMC, MMD (SPH, BH, H), MML (BH, H, NH), MMF = fig7

High efficiency 4-way blow cassette, MMU (UP####H-E) = fig 8

Hot Water Modules, MMW (UP####LQ-E, AP####CHQ-E) = fig 9

DX Coil Interfaces, M(C)MY-MHP####HT-E = fig 10

3) The Diversity of the system,.

i.e the Total HP of the installed indoor units multiplied by the Total HP of the outdoor units forming the system, (Outdoor units connected together electrically, via U5 & U6) the result is the Diversity, **= fig 11**

4) Liquid Line Installed.

Measure the lengths of Liquid Line pipe installed, **STRAIGHT PIPE ONLY,** (Linear), ***DO NOT CALCULATE FOR BENDS OR FITTINGS,*** multiply by the corresponding kg/m **= fig 12**

Examples.

1) A 60HP system, MMY-UP6211HT8P-E (2x24hp (2 x MMY-MUP2401HT8P-E) + 1 x 12hp, (1 x MMY-MUP1201HT8P-E), with 2 x 10hp,MMD-MUP0961HP-E1 (28kW-Cool, High Static Ducted units) plus 8 x 4hp, MMDUP0361BHP-E (11.2kW-Cool, Standard Ducted Units), plus 5 x 2hp, MMD-MUP0181BHP-E (5.6kW-Cool, Standard Ducted Units), Indoor to Outdoor Diversity = 103.33%, Correct Charge 0kg, with 35m of 7/8" Liquid Line, 20m of 3/4" Liquid Line, 10m of 5/8" Liquid Line, 30m of 1/2" Liquid Line, 30m of 3/8" Liquid Line and 25m of 1/4" Liquid Line.

13.3kg + (2 x 1kg [2kg]+ 8 x 0.6kg [4.8kg]+ 5 x 0.4kg [2kg]) = **8.8kg** + (35 x 0.370=12.25kg + 20 x 0.250=5kg + 10 x 0.160=1.6kg + 30 x 0.105=3.15kg + 30 x 0.055=1.65kg + 25 x 0.025=0.625kg) = **24.275kg** + Diversity **0kg**

13.3 + 8.8 + 24.275 + 0 = 46.375kg

2) A 60HP system, MMY-UP6211HT8P-E (2x24hp (2 x MMY-MUP2401HT8P-E) + 1 x 12hp, (1 x MMY-MUP1201HT8P-E), with (2 x 10hp,MMD-MUP0961HP-E1 (28kW-Cool, High Static Ducted units) plus) (8) 7 x 4hp, MMDUP0361BHP-E (11.2kW-Cool, Standard Ducted Units), plus 5 x 2hp, MMD-MUP0181BHP-E (5.6kW-Cool, Standard Ducted Units), Indoor to Outdoor Diversity = (103.33%) 63.33%, Correct Charge (0kg) -2kg, with 35m of 7/8" Liquid Line, 20m of 3/4" Liquid Line, 10m of 5/8" Liquid Line, (30m) 10m of 1/2" Liquid Line, 30m of 3/8" Liquid Line and 25m of 1/4" Liquid Line.

13.3kg + (2 x 1kg [2kg]+ (8) 7 x 0.6kg [4.2kg]+ 5 x 0.4kg [2kg]) = **6.2kg** + (35 x 0.370=12.25kg + 20 x 0.250=5kg + 10 x 0.160=1.6kg + (30) 10 x 0.105=1.05kg + 30 x 0.055=1.65kg + 25 x 0.025=0.625kg) = **22.175kg** + Diversity **-2kg**

13.3 + 6.2+ 22.175 -2 = 39.675kg

Figures in red removed or modified on example 2.

In compliance with current F-Gas regulations a label should be attached to the outdoor unit adjacent to the Service Valves, with Factory Charge plus Additional Charge

example 1 (fig 14), this would be **46.375 + 24.00 = 70.38kg**

example 2 (fig 15), this would be 39.675 + 24.00 = 63.68kg

(A label is provided within the installation manual which accompanies the outdoor unit)

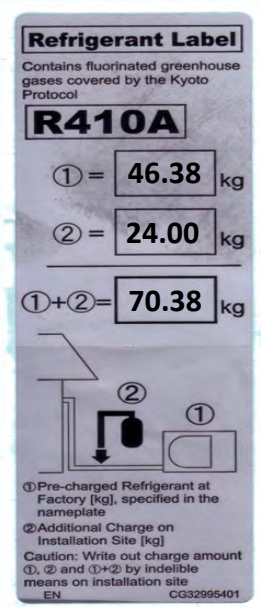


fig 14

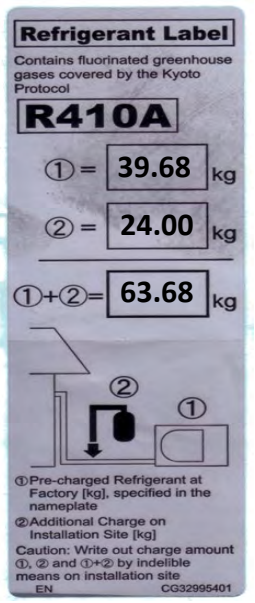


fig 15

Charging the system.

Keeping the valves of the outdoor unit/s closed, charge the liquid refrigerant, (By Weight) into the service port of the liquid line valve.

If the required amount of refrigerant cannot be charged into the liquid line with the valves closed, fully open the liquid and suction valves of the outdoor unit/s, operate the system in the **COOLING MODE**, part seat (Partially close), the suction gas valve then charge liquid refrigerant into the suction line service port.

Whilst adding refrigerant in this method, "***choke***" the refrigerant slightly by operating the valve of the refrigerant cylinder or chargeing manifold, to maintain a liquid refrigerant flow, always charge refrigerant gradually.

NOTE: In order to run the system in COOLING MODE, the system would need to be "Addressed"

Key changers between previous generation Heat Pump VRF and the current “U” generation Heat Pump VRF are;

Where the outdoor unit is a stand-alone system, the unit needs setting up as a Header, this is done via the “Dip Switches” located in the outdoor unit, switch **SW101 bit 1 needs to be set to the ON position, and SW100 bit 2 also needs to be set to the ON position.**

The same rule applies when the outdoor unit is a part of a multiple system, i.e. up to 5 outdoor units can be modulised to form a single system, in this situation one outdoor unit needs to be configured as a “Header Unit”, this would be the largest outdoor unit and it would be the outdoor unit nearest to the indoor units via the installed pipe work.

<u>Failure to follow the above would produce an “E19” error code.</u>

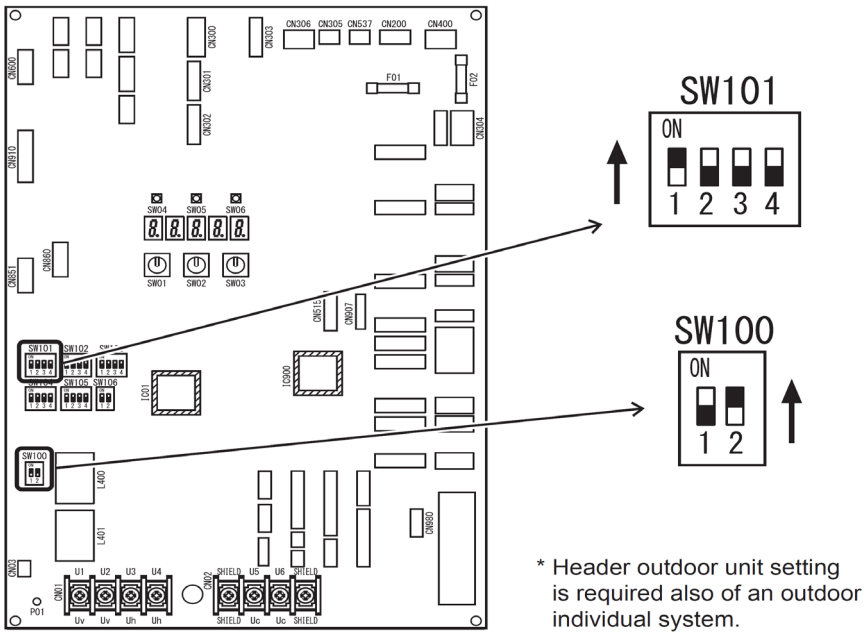


fig 16

If the equipment is to be connected to a central remote control or a BMS interface, then the “***System Address***” might need amending.

When the equipment leaves the factory **ALL** units are configured to be System Address **ONE**, when one or more unit is being connected to a single Central Remote / BMS interface, each outdoor unit must have a unique system address, addresses available are 1 (Factory) to 28, system addresses **<u>MUST</u>** be amended **<u>PRIOR</u>** to instigating the auto address procedure.

With the equipment powered down and **BEFORE** Auto Addressing, at each header unit give the system a unique address via **SW101 and SW102**.

By default switches **SW101 and SW102** (4-bits per switch) are in the **OFF**, (X - down) position, using chart fig 3, give each system it's own system address, starting with 1, (Factory), 2, 3 etc.

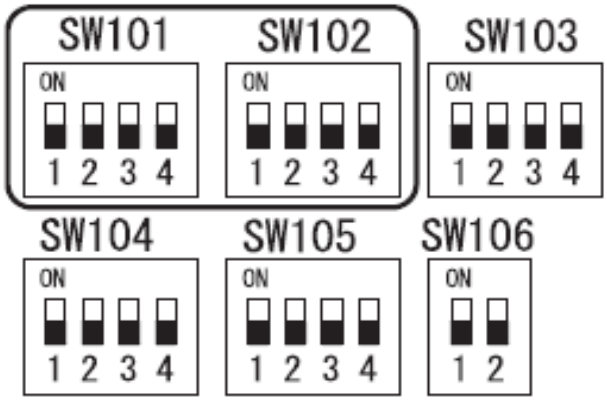


fig 17

Line (System) address chart

Line (system) address	SW101				SW102			
	1	2	3	4	1	2	3	4
1	-	-	-	X	X	X	X	X
2	-	-	-	X	X	X	X	O
3	-	-	-	X	X	X	O	X
4	-	-	-	X	X	X	O	O
5	-	-	-	X	X	O	X	X
6	-	-	-	X	X	O	X	O
7	-	-	-	X	X	O	O	X
8	-	-	-	X	X	O	O	O
9	-	-	-	X	O	X	X	X
10	-	-	-	X	O	X	X	O
11	-	-	-	X	O	X	O	X
12	-	-	-	X	O	X	O	O
13	-	-	-	X	O	O	X	X
14	-	-	-	X	O	O	X	O
15	-	-	-	X	O	O	O	O
16	-	-	-	X	O	O	O	O
17	-	-	-	O	X	X	X	O
18	-	-	-	O	X	X	X	O
19	-	-	-	O	X	X	O	X
20	-	-	-	O	X	X	O	O
21	-	-	-	O	X	O	X	X
22	-	-	-	O	X	O	X	O
23	-	-	-	O	X	O	O	X
24	-	-	-	O	X	O	O	O
25	-	-	-	O	O	X	X	X
26	-	-	-	O	O	X	X	O
27	-	-	-	O	O	X	O	X
28	-	-	-	O	O	X	O	O

O = ON, X - OFF

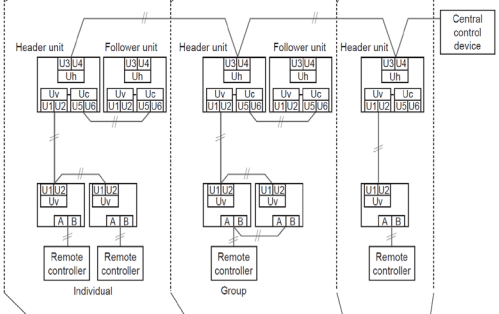
fig 18

Switch setting (setting example when controlling 2 or more refrigerant lines centrally)

Outdoor units (setting manually)

*The items in bold font must be set manually.

Outdoor unit's interface P.C. board	Header unit	Follower unit	Header unit	Follower unit	Header unit	Factory default
SW101, 102 (line (system) address	1	(No setting required)	2	(No setting required)	3	1
DIP switch 1 of SW100 (Terminator of central control line)	Set to ON	(No setting required)	(No setting required)	(No setting required)	(No setting required)	OFF



Indoor units (automatic setting)					
Line (system) address	1	1	2	2	3
Indoor unit address	1	2	1	2	1
Group address	0	0	1	2	0

fig 19

On completion of the initial settings, if a central remote device or BMS interface is to be used on the system leave the electrical connections U3 & U4, (**Uh**) "**DISCONNECTED**", apply power to the installation in the following order.

(Note:, Power must be applied to the outdoor units for a period of 12/24 hours **BEFORE** running the system for the first time, (This will energies the crankcase heaters), to avoid addressing errors or issues, at the lead outdoor unit, disconnect the two core cable connected on terminals U1 & U2, (**Uv**).
After 12/24 hours, power down the outdoor unit/s, re-connect U1 & U2, then following the sequence below.)

a) Apply power to all the indoor units. (Local wired remote controllers - (where installed), will display either "Setting" or "A Timer symbol ⧗ " depending on model of remote installed, this will stay being displayed until the system has completed configuration.)

b) Apply power to the outdoor units.

c) At the lead outdoor unit after approx. 1 minute, the display will read,
U1-Err(U.1.***flash***) and L08 alternately at 1 second intervals.

d) Press **SW06**, this will start the automtic addressng procedure.
The display will automatical scroll through and display AUTO 1 - AUTO 2 - AUTO 9
Setting is completed after approx 10-15 minutes and the display changes to U.1.- - - (U.1. flash)

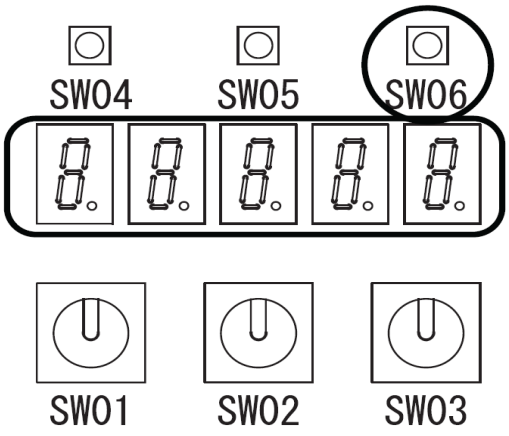
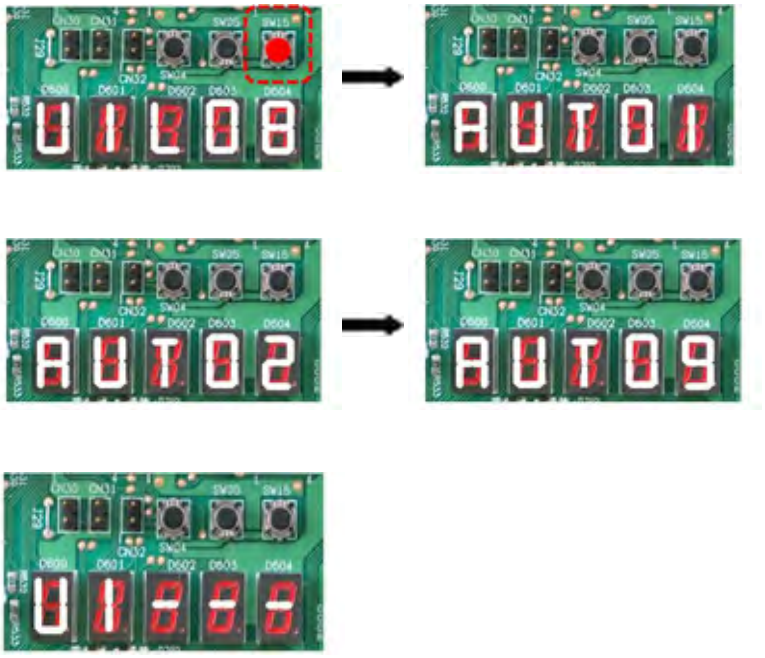


fig 20



To check the systems configuration set rotary switches **SW01,SW02,SW03** as follows,

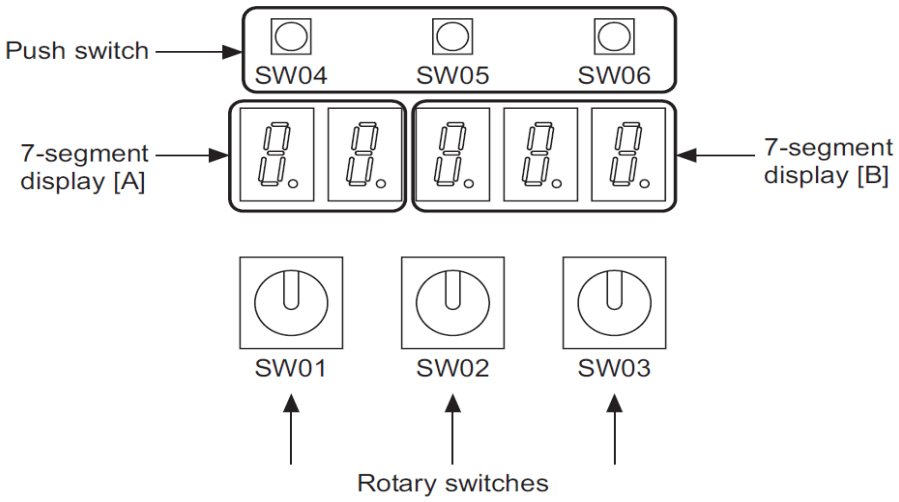


fig 21

SW01 to [1], SW02 to [2], SW03 to [3], this will display the systems capacity, (8 to 120) HP

SW01 to [1], SW02 to [3], SW03 to [3], this will display the quantity of outdoor units (CDU) on the system, (1 to 5)

SW01 to [1], SW02 to [4], SW03 to [3], this will display the quantity of indoor units (FCU) on the system, (1 to 128)

If on completion of the automatic addressing the count of indoor units is lower than the actual, check if the affected indoor unit/s wired remote controller displays “Setting” or the “Timer symbol ⏳”, if there is no display, check the power supply to the unit/s, if there is a display, check the interconnecting cables terminated at U1 & U2.

Once any anomalies have been identified and corrected, return to the “Header” outdoor unit (U1 - - -) and set the rotary switches **SW01, SW02 and SW03 to 2 -14 -2,** briefly press and hold **SW04**, the LED display will change and will automatically scroll through “Auto 1 to Auto 9”, on completion the display will revert to “U1 - - -”, set-up is complete.

Set SW01,SW02 & SW03 to 1 - 4 - 3, the display will show the quantity of FCU’s identified, this should have increased.

Re-set SW01,SW02 & SW03 to 1 - 1 - 1

To run the system in **TEST COOLING MODE, set SW01 to 2, SW02 to 5 and SW03 to 1, push and hold SW04 for 2 seconds**, all connected indoor units will now operate in a restricted / limited mode, **NOT FULL LOAD.**
Allow the system to run in Test Cooling Mode for 15 / 30 minutes.

To terminate re-set SW01 to 1, SW02 to 1 and SW03 to 1.

To run the system in **TEST HEATING MODE, set SW01 to 2, SW02 to 6 and SW03 to 1, push and hold SW04 for 2 seconds**, all connected indoor units will now operate in a restricted / limited mode, **NOT FULL LOAD.**
Allow the system to run in Test Heating Mode for 15 / 30 minutes.

To terminate re-set SW01 to 1, SW02 to 1 and SW03 to 1.

If a central control device is to be utilised, power down the CDU/s, connect the central device to the U3 & U4 (**Uh**) terminals at the header (U1 - - -) CDU.

Set **SW100 bit 1 to "ON**" on the lowest numbered system, i.e. 3 systems addressed as 1, 2, 3, **SW100 bit 1 on system 1 would be turned ON, system 2 & 3 SW100 bit 1 OFF,** re-apply the power

Example

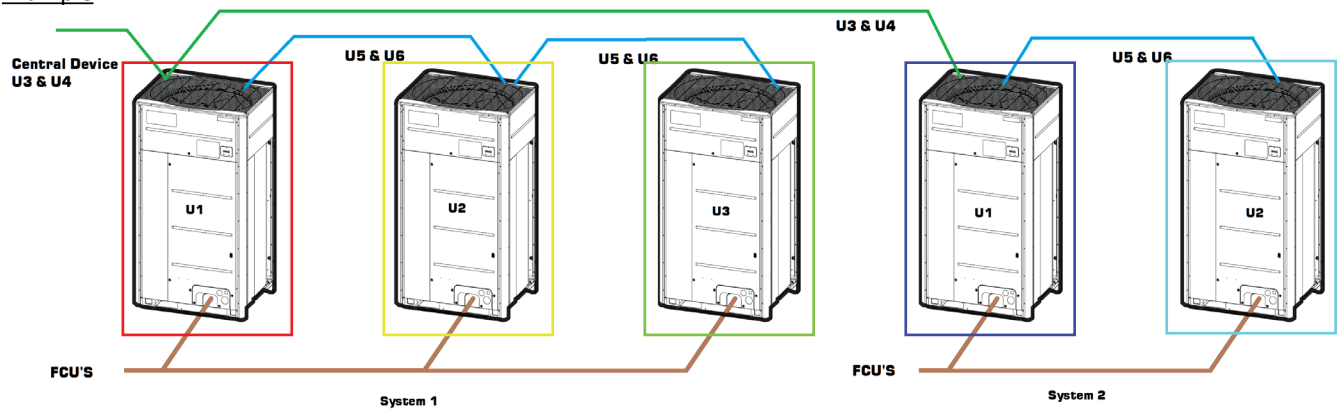


fig 22

Configuration					
System 1				System 2	
CDU Interface PCB	U1 Header	U2 Follower	U3 Follower	U1 Header	U2 Follower
SW100 bit 1	ON	OFF*	OFF*	OFF*	OFF*
SW100 Bit 2	ON	OFF*	OFF*	ON	OFF*
SW101 bit 1	ON	OFF*	OFF*	ON	OFF*
SW102 bit 4	OFF*	OFF*	OFF*	ON	OFF*
* Factory Default					

Additional Functions.

Priority Mode - SMMSu - (Default Heating mode)

Two pipe heat pump systems operate in either heating or cooling modes, by default the SMMSu are configured in the heating mode, any one indoor unit requesting heating will put the outdoor unit into heating mode. This can be reconfigured to 1) Heating (default), Cooling, Majority (60% requesting same mode), Specific indoor unit.

With the system powered up but **NO** indoor units running.
Set the rotary switches, **SW01 = (9), SW02 = (1) and SW03 = (1) -** (fig21)
LED display shows "***d n.S E t***" Press **SW04** LED display changes to "***d n.0 0 1***" (Outdoor unit DN Code (0 0 1)
Change "ODU DN code" by pressing **SW05** to advance or **SW06** to return.
When required DN code is reached, **(0 1 8)** press **SW04** LED display blinks "***d.* * * ****" then the setting data "0 0 0 0" is displayed. (Priority Heating – Default)
To change the Data, **SW05** to advance and **SW06** to return. (Available options, 0 0 0 0 = Heating, 0 0 0 1 = Cooling, 0 0 0 2 = Majority, 0 0 0 3 Specific Indoor Unit)
Select required option, Then press and **HOLD SW04** for more than 2 seconds, (When flashing stops and display is lit, setting is complete.)
Set rotary switches on Interface PCB back to **SW01=(1), SW02=(1), SW03=(1)**

Reset the power to the ODU, power off for one minute or more.

Additional Functions (continued).

Outdoor Fan High Static Pressure Setup - SMMSu

This function is used when connecting a duct to the discharge outlet of an outdoor unit.
This function must be enabled with every discharge duct connected outdoor unit for both of the header and follower units. It is necessary to increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified. If a discharge duct with a resistance greater than 15 Pa (1.5 mmAq) is to be used, enable this function. The maximum external static pressures of singular base units are shown below: -

Model MMY-MUP		0801*	1001*	1201*1	1401*	1601*	1801*	2001*	2201*	2401*
Maximum external static pressure (Pa)		80	80	80	80	80	80	80	80	80
(#) Outdoor unit air flow	(m3/min)	165	175	195	198	255	280	265	275	275

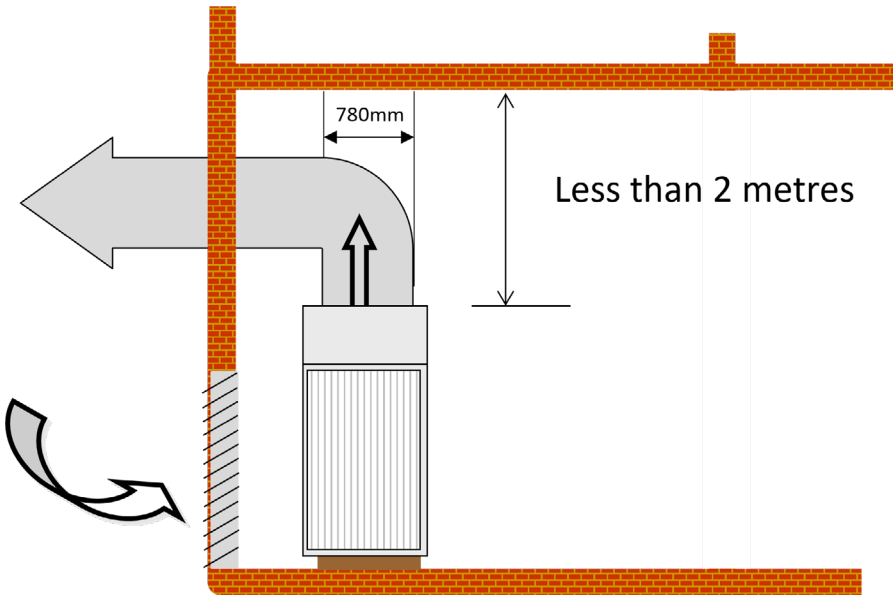
(#) Calculate duct resistance from outdoor unit airflow. When units are combined maximum external static pressure is the lower value of any single unit in the combination.

fig 24

With the system powered up but **NO** indoor units running.
Set the rotary switches, SW01 = **(9)**, SW02 = **(1)** and SW03 = **(1) - (fig21)**
LED display shows "**d n.S E t**" Press **SW04** LED display changes to "**d n.0 0 1**" (Outdoor unit DN Code (0 0 1)
Change "ODU DN code" by pressing **SW05** to advance or **SW06** to return. When required DN code is reached, ***(0 1 9)*** press **SW04** LED display blinks "d.* * * *" then the setting data "0 0 0 0" is displayed. (Priority Normal – Default)
To change the Data, **SW05** to advance and **SW06** to return. (Available options, 0 0 0 0 = Normal, 0 0 0 1 = High Static)
Select required option, Then press and **HOLD SW04** for more than 2 seconds, (When flashing stops and display is lit, setting is complete.)
Set rotary switches on Interface PCB back to **SW01=(1), SW02=(1), SW03=(1)**

Reset the power to the ODU, power off for one minute or more.

Note: There **MUST** be a clearance of 2m from the top of the fan guard to a solid obstical, (fig 25), if the clearance is lower than 2m, then discharge ducting MUST be installed.

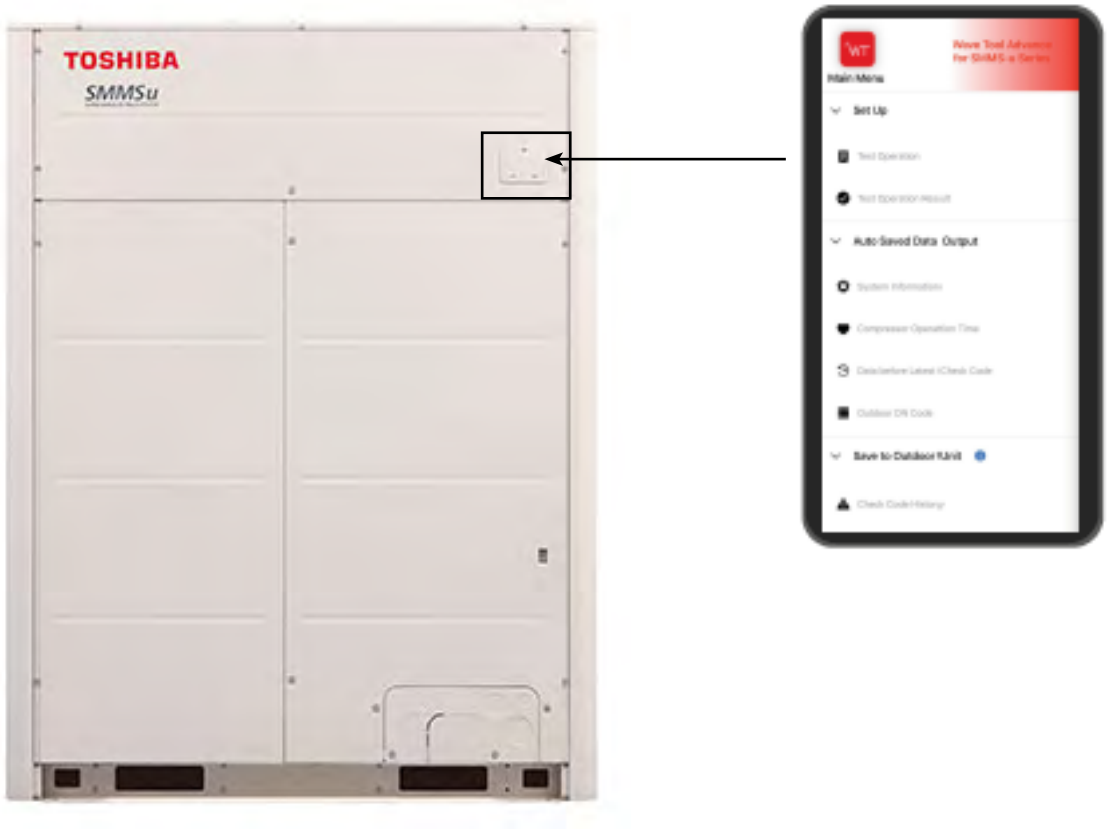


SMMSu CDU's are equipped with an in built diagnostic facility called the "Wave Tool Advance", and is accessed via an "NFC", (Near Field Communication) and a smartphone, (smartphone need to have "NFC" facility).

The smartphone "app" is available for IOS (Apple) and Android, using the following link, the "app" can be downloaded.

https://www.toshiba-carrier.co.jp/global/appli/smms_wave_tool_advance/index.htm

Using the Wave Tool Advance application (WTA App.), You can see, CDU model/s and serial number, system capacity, FCU type and capacity, CDU dip switch settings, test operation, test operation result and simple report, just by opening the "app" and touching the smartphone to the NFC "tag", which is located on the top right of the CDU.



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