



VRV Selection

Project Report

Report details

Produced on: 1/20/2023

Application version: 2023.1.18.2

Project details

Project name: Nike Rise Store Manchester

Solution name: Unnamed solution (1)

Client Name: WSP

Customer reference:

Quotation reference:

Project number: 1061988/1300170

The output of the VRV Xpress software is based on Daikin-genuine capacity tables that relate to the Japanese Industry Standard. The VRV Xpress software provides a selection of outdoor and indoor units with optimal efficiency to fit cooling and heating load requirements.



Material list

Model	Quantity	Description
REYQ8U	1	REYQ-U (VRV IV)
REYQ10U	2	REYQ-U (VRV IV)
REYQ12U	1	REYQ-U (VRV IV)
BS6Q14AV1B	1	Branch selector unit
BS8Q14AV1B	3	Branch selector unit
FXFQ32B	2	FXFQ-B - Round Flow Round flow cassette
FXFQ63B	2	FXFQ-B - Round Flow Round flow cassette
FXSQ15A	1	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ40A	9	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ50A	9	FXSQ-A - Concealed ceiling unit with medium ESP
FXSQ63A	1	FXSQ-A - Concealed ceiling unit with medium ESP
FXZQ15A	2	FXZQ-A - Fully flat cassette
FXZQ20A	1	FXZQ-A - Fully flat cassette
DCM601A51	1	Intelligent Touch Manager
DMS502A51	1	BACnet Interface - integrated control system connecting VRV system with BMS system
BRC1H52W	13	Remote controller (white)
BYCQ140E	4	Standard decoration panel
BYFQ60CW	3	New decoration panel (white)

Indoor unit details

Table of abbreviations

Abbreviation	Description
Name	Logical name of the device
FCU	Device model name
Tmp C	Indoor conditions in cooling
Rq TC	Required total cooling capacity
Rv TC	Revised total cooling capacity (asked from outdoor)
Max TC	Available total cooling capacity
Rq SC	Required sensible cooling capacity
Tevap	Evaporating temperature of indoor unit coil
Tdis C	Indoor unit discharge air temperature in cooling based on maximum capacities and required capacities
Max SC	Available sensible cooling capacity
PIC	Power input in cooling mode @ 50Hz
Tmp H	Indoor temperature in heating
Rq HC	Required heating capacity
Max HC	Available heating capacity
Tdis H	Indoor unit discharge air temperature in heating based on maximum capacities and required capacities
PIH	Power input in heating mode @ 50Hz
Sound	Sound pressure level low and high
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
MFA	Maximum Fuse Amps
WxHxD	WidthxHeightxD
Weight	Weight of the device
Min coil	Minimum coil volume
Max coil	Maximum coil volume
Air Flow Rate	Air Flow Rate

Level 0 - System 1 - REYQ8U

Capacity data at conditions and connection ratio (96) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
FCU/00/01	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
FCU/00/05	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
FCU/00/06	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
FCU/00/09	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
FCU/00/11	FXFQ32B	23.0/50%	2.5	2.5	3.0	n/a	6.0	13.3 / 15.8	2.6	0.017
			15.7							

Name	FCU	Heating							Air Flow Rate
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	
		°C	kW	kW	°C	kW	m³	m³	
FCU/00/01	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
FCU/00/05	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
FCU/00/06	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
FCU/00/09	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
FCU/00/11	FXFQ32B	21.0	n/a	3.9	35.9 / 21.0	0.017	n/a	n/a	213.33
			n/a						

Name	FCU	Room	Sound	PS	MCA	MFA	WxHxD	Weight
			dBA				mm	kg
FCU/00/01	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
FCU/00/05	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
FCU/00/06	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
FCU/00/09	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
FCU/00/11	FXFQ32B	Stock Room	28 - 31	220V 1ph	0.3	Factory Std	840 x 204 x 840	18.0

Remarks

Under capacity

The sum of the required indoor unit capacities is 15.7kW for cooling. However, the selected outdoor unit has a cooling capacity of 15.1kW (= -4.1%). Be aware that an undersized system may lead to reduced comfort levels, different noise levels or increased wear and tear.

Outdoor vs. indoor position

Outdoor unit placed 9.0m above the indoor units.

Level 0 - System 2 - REYQ10U

Capacity data at conditions and connection ratio (99) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
BS/GF/02	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
BS/GF/03	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087



Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
BS/GF/04	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
BS/GF/07	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
BS/GF/08	FXSQ40A	23.0/50%	3.3	3.3	3.7	n/a	6.0	13.6 / 14.9	2.9	0.087
BS/GF/10	FXSQ15A	23.0/50%	0.1	0.1	1.4	n/a	6.0	16.9 / 22.7	1.1	0.041
BS/GF/12	FXFQ32B	23.0/50%	2.5	2.5	3.0	n/a	6.0	13.3 / 15.8	2.6	0.017
			19.1							

Name	FCU	Heating							
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	Air Flow Rate
		°C	kW	kW	°C	kW	m³	m³	l/s
BS/GF/02	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
BS/GF/03	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
BS/GF/04	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
BS/GF/07	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
BS/GF/08	FXSQ40A	21.0	n/a	4.8	36.7 / 21.0	0.087	n/a	n/a	250.00
BS/GF/10	FXSQ15A	21.0	n/a	1.8	31.1 / 21.0	0.041	n/a	n/a	145.00
BS/GF/12	FXFQ32B	21.0	n/a	3.9	35.9 / 21.0	0.017	n/a	n/a	213.33
			n/a						

Name	FCU	Room	Sound	PS	MCA	MFA	WxHxD	Weight
			dBA				mm	kg
BS/GF/02	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
BS/GF/03	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
BS/GF/04	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
BS/GF/07	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
BS/GF/08	FXSQ40A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	28.5
BS/GF/10	FXSQ15A	Changing	25 - 30	220V 1ph	0.8	Factory Std	550 x 245 x 800	23.5
BS/GF/12	FXFQ32B	Stock Room	28 - 31	220V 1ph	0.3	Factory Std	840 x 204 x 840	18.0

Remarks

Under capacity

The sum of the required indoor unit capacities is 19.1kW for cooling. However, the selected outdoor unit has a cooling capacity of 19.0kW (= -0.3%). Be aware that an undersized system may lead to reduced comfort levels, different noise levels or increased wear and tear.

Outdoor vs. indoor position

Outdoor unit placed 9.0m above the indoor units.

Level 1 - System 3 - REYQ12U

Capacity data at conditions and connection ratio (130) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
FCU/01/01	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/03	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
FCU/01/04	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/07	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/08	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/10	FXSQ63A	23.0/50%	5.0	5.0	5.8	n/a	6.0	12.6 / 14.3	4.5	0.101
FCU/01/12	FXZQ15A	23.0/50%	0.4	0.4	1.4	n/a	6.0	15.7 / 21.3	1.3	0.018
FCU/01/15	FXFQ63B	23.0/50%	5.0	5.0	5.8	n/a	6.0	9.6 / 11.9	4.5	0.028
			28.9							

Name	FCU	Heating							
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	Air Flow Rate
		°C	kW	kW	°C	kW	m³	m³	l/s
FCU/01/01	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/03	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/04	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/07	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/08	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/10	FXSQ63A	21.0	n/a	7.7	38.9 / 21.0	0.101	n/a	n/a	350.00
FCU/01/12	FXZQ15A	21.0	n/a	1.8	31.4 / 21.0	0.018	n/a	n/a	141.67
FCU/01/15	FXFQ63B	21.0	n/a	7.7	43.7 / 21.0	0.028	n/a	n/a	276.67
			n/a						

Name	FCU	Room	Sound dBA	PS	MCA A	MFA	WxHxD	Weight kg
							mm	
FCU/01/01	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/03	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/04	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/07	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/08	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/10	FXSQ63A	Changing	27 - 33	220V 1ph	1.6	Factory Std	1,000 x 245 x 800	35.5
FCU/01/12	FXZQ15A	One 2 One	26 - 32	220V 1ph	0.3	Factory Std	575 x 260 x 575	15.5
FCU/01/15	FXFQ63B	Stock Room	30 - 35	220V 1ph	0.4	Factory Std	840 x 204 x 840	21.0

Remarks

Outdoor vs. indoor position

Outdoor unit placed 6.0m above the indoor units.

Level 1 - System 4 - REYQ10U

Capacity data at conditions and connection ratio (119) as entered

Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
FCU/01/02	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/05	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/06	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/09	FXSQ50A	23.0/50%	3.7	3.7	4.6	n/a	6.0	11.6 / 14.1	3.6	0.089
FCU/01/11	FXZQ15A	23.0/50%	0.7	0.7	1.4	n/a	6.0	15.7 / 20.0	1.3	0.018



Name	FCU	Cooling								
		Tmp C	Rq TC	Rv TC	Max TC	Rq SC	Tevap	Tdis C	Max SC	PIC
		°C (DBT/RH)	kW	kW	kW	kW	°C	°C	kW	kW
FCU/01/13	FXZQ20A	23.0/50%	1.8	1.8	1.8	n/a	6.0	14.7 / 15.4	1.5	0.018
FCU/01/14	FXFQ63B	23.0/50%	5.0	5.0	5.8	n/a	6.0	9.6 / 11.9	4.5	0.028
			22.3							

Name	FCU	Heating							
		Tmp H	Rq HC	Max HC	Tdis H	PIH	Min coil	Max coil	Air Flow Rate
		°C	kW	kW	°C	kW	m³	m³	l/s
FCU/01/02	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/05	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/06	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/09	FXSQ50A	21.0	n/a	6.1	40.6 / 21.0	0.089	n/a	n/a	253.33
FCU/01/11	FXZQ15A	21.0	n/a	1.8	31.4 / 21.0	0.018	n/a	n/a	141.67
FCU/01/13	FXZQ20A	21.0	n/a	2.4	34.5 / 21.0	0.018	n/a	n/a	145.00
FCU/01/14	FXFQ63B	21.0	n/a	7.7	43.7 / 21.0	0.028	n/a	n/a	276.67
			n/a						

Name	FCU	Room	Sound	PS	MCA	MFA	WxHxD	Weight
			dBA				mm	kg
FCU/01/02	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/05	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/06	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/09	FXSQ50A	Front of House	29 - 35	220V 1ph	1.1	Factory Std	700 x 245 x 800	29.0
FCU/01/11	FXZQ15A	Office	26 - 32	220V 1ph	0.3	Factory Std	575 x 260 x 575	15.5
FCU/01/13	FXZQ20A	Break	26 - 32	220V 1ph	0.3	Factory Std	575 x 260 x 575	15.5
FCU/01/14	FXFQ63B	Stock Room	30 - 35	220V 1ph	0.4	Factory Std	840 x 204 x 840	21.0

Remarks

Outdoor vs. indoor position

Outdoor unit placed 6.0m above the indoor units.



Outdoor unit details

Table of abbreviations

Abbreviation	Description
Name	Logical name of the device
Model	Device model name
▼	Optimized selection: Smaller outdoor model selected than standard proposed model
CR	Connection ratio
Tmp C	Outdoor conditions in cooling
WFR	Water flow per outdoor unit module
CC	Available cooling capacity
Rq CC	Required cooling capacity
PIC	Power input in cooling mode
InC	Water inlet temperature in cooling mode
OutC	Water outlet temperature in cooling mode
Tmp H	Outdoor conditions in heating (dry bulb temp. / RH)
HC	Available heating capacity (integrated heating capacity)
Rq HC	Required heating capacity
PIH	Power input in heating mode
InH	Water inlet temperature in heating mode
OutH	Water outlet temperature in heating mode
Piping	Largest distance from indoor unit to outdoor unit
Bse Refr	Standard factory refrigerant charge (16.4ft actual piping length) excluding extra refrigerant charge. For calculation of extra refrigerant charge refer to the databook
Ex Refr	Extra refrigerant charge
PS	Power supply (voltage and phases)
MCA	Minimum Circuit Amps
MFA	Maxium Fuse Amps
FLA	Fan Motor Input
RLA	Nominal Running Amps
WxHxD	WidthxHeightxDepth
Weight	Weight of the device
EER	EER value at nominal condition
IEER	IEER value at nominal condition
COP47	COP value at nominal condition and at ambient temperature of 8°C
COP17	COP value at nominal condition and at ambient temperature of -8°C

Outdoor details

Name	Model	CR	Cooling			Heating			Piping m
			Tmp C	CC	Rq CC	Tmp H	HC	Rq HC	
			°C	kW	kW	°C (DBT/RH)	kW	kW	
Level 0 - System 1	REYQ8U ▼	95.6	35.0	15.1	15.7	-5.0/100%	18.6	0.0	75.0
Level 0 - System 2	REYQ10U ▼	98.5	35.0	19.0	19.1	-5.0/100%	21.0	0.0	75.0
Level 1 - System 3	REYQ12U	130.0	35.0	29.8	28.9	-5.0/100%	25.4	0.0	65.0
Level 1 - System 4	REYQ10U ▼	119.0	35.0	22.9	22.3	-5.0/100%	22.5	0.0	65.0

Name	Model	PS	MCA	MFA	RLA	FLA	WxHxD	Weight
			A	A	A	A	mm	kg
Level 0 - System 1	REYQ8U	400V 3Nph	16.1	20.0	7.7	1.2	930 x 1,685 x 765	230.0
BS/GF/01	BS6Q14AV1B	230V 1ph	0.6	15.0			580 x 298 x 430	28.0
Level 0 - System 2	REYQ10U	400V 3Nph	22.0	25.0	10.5	1.3	930 x 1,685 x 765	230.0
BS/GF/02	BS8Q14AV1B	230V 1ph	0.8	15.0			580 x 298 x 430	31.0
Level 1 - System 3	REYQ12U	400V 3Nph	24.0	32.0	13.8	1.5	930 x 1,685 x 765	230.0
BS/01/01	BS8Q14AV1B	230V 1ph	0.8	15.0			580 x 298 x 430	31.0
Level 1 - System 4	REYQ10U	400V 3Nph	22.0	25.0	10.5	1.3	930 x 1,685 x 765	230.0
BS/01/02	BS8Q14AV1B	230V 1ph	0.8	15.0			580 x 298 x 430	31.0

Sound Data

Name	Model	Sound Power		Sound Pressure	
		Cooling	Heating	Cooling	Heating
		dBA	dBA	dBA	dBA
Level 0 - System 1	REYQ8U	78	63	57	-
Level 0 - System 2	REYQ10U	81	66	60	-
Level 1 - System 3	REYQ12U	83	65	61	-



Name	Model	Sound Power		Sound Pressure	
		Cooling	Heating	Cooling	Heating
		dBA	dBA	dBA	dBA
Level 1 - System 4	REYQ10U	81	66	60	-

Seasonal Efficiency

Name	Model	$\eta_{s,h}$ heating	$\eta_{s,c}$ cooling	SCOP	SEER	CSPF
		%	%			
Level 0 - System 1	REYQ8U	165.1	286.1	4.20	7.20	-
Level 0 - System 2	REYQ10U	158.8	275.1	4.00	7.00	-
Level 1 - System 3	REYQ12U	183.8	257.0	4.70	6.50	-
Level 1 - System 4	REYQ10U	158.8	275.1	4.00	7.00	-

For more information go to: <https://energylabel.daikin.eu/>.

Refrigerant information

Name	Model	Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
Level 0 - System 1	REYQ8U	R410A	2087.5	9.70	unknown	20.2
Level 0 - System 2	REYQ10U	R410A	2087.5	9.80	unknown	20.5
Level 1 - System 3	REYQ12U	R410A	2087.5	9.90	unknown	20.7
Level 1 - System 4	REYQ10U	R410A	2087.5	9.80	unknown	20.5

The system(s) contain fluorinated greenhouse gases.

TCO2 equivalent is calculated only considering the base refrigerant charge. Depending on the field pipe length extra refrigerant needs to be added which will increase the TCO2 equivalent.

Level 0 - System 1 - REYQ8U

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	9.70	unknown	20.2

The system(s) contain fluorinated greenhouse gases.



Remarks

Chosen outdoor unit size differs from default proposed size. Be aware that this might lead to reduced comfort levels, increased noise levels, wear and tear. In case of doubt, contact your sales representative.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"
Main pipe size up	1/2"x3/4"x5/8"

Remarks

Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	1/2" (liquid) x 3/4" (gas) x 5/8" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

Level 0 - System 2 - REYQ10U

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	9.80	unknown	20.5

The system(s) contain fluorinated greenhouse gases.

Remarks

Chosen outdoor unit size differs from default proposed size. Be aware that this might lead to reduced comfort levels, increased noise levels, wear and tear. In case of doubt, contact your sales representative.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"



Maximum Connection Index	Diameters
Main pipe size up	1/2"x7/8"x3/4"

Remarks

Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	1/2" (liquid) x 7/8" (gas) x 3/4" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

Level 1 - System 3 - REYQ12U

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	9.90	unknown	20.7

The system(s) contain fluorinated greenhouse gases.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"
Main pipe size up	5/8"x1 1/8"x3/4"



Remarks

Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	5/8" (liquid) x 1 1/8" (gas) x 3/4" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

Level 1 - System 4 - REYQ10U

Refrigerant information

Refrigerant type	GWP	Base charge kg	Extra charge kg	TCO2 equivalent
R410A	2087.5	9.80	unknown	20.5

The system(s) contain fluorinated greenhouse gases.

Pipe capacities

Maximum Connection Index	Diameters
149.9	3/8"x5/8"x1/2"
199.9	3/8"x3/4"x5/8"
289.9	3/8"x7/8"x3/4"
419.9	1/2"x1 1/8"x3/4"
639.9	5/8"x1 1/8"x1 1/8"
919.9	3/4"x1 3/8"x1 1/8"
> 919.9	3/4"x1 5/8"x1 1/8"
Main pipe size up	1/2"x7/8"x3/4"



Remarks

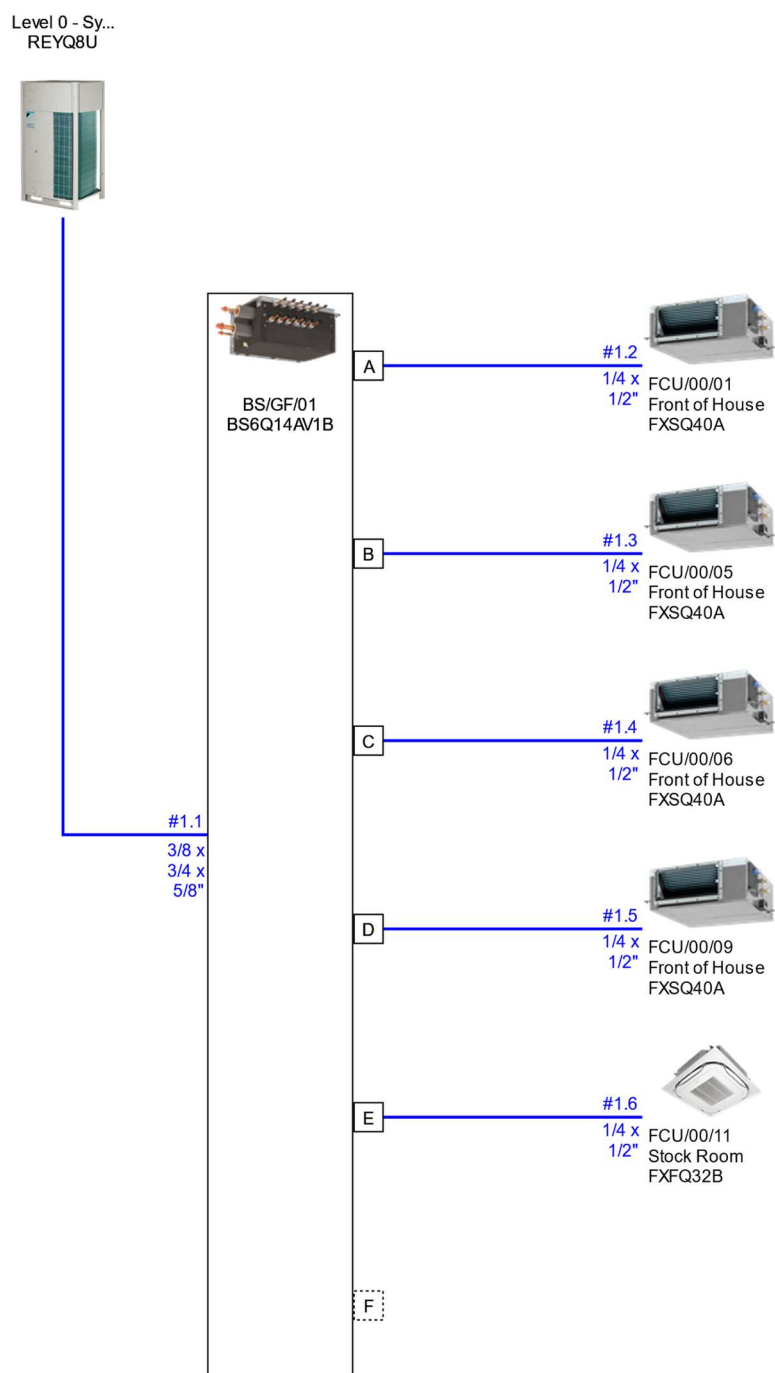
Please make sure to provide a drain pipe connection to each multi BS-box in the system.

Piping limitations

Description	Value
Maximum total length	1,000.0m
Maximum longest actual length	165.0m
Maximum longest equivalent length	190.0m
Maximum main pipe length (size up of main pipe required if longer)	-
Maximum length first branch to indoor unit(size up of intermediate pipes required if longer)	40.0m
Maximum length first branch to indoor unit	90.0m
Maximum length of indoor units to nearest branch	40.0m
Maximum length difference between longest and shortest distance to indoor units	40.0m
Maximum height difference, outdoor unit below indoor units	90.0m
Minimum connection ratio, outdoor unit below indoor units	-
Maximum height difference, outdoor unit above indoor units	90.0m
Minimum connection ratio, outdoor unit above indoor units	-
Maximum height difference in technical cooling, outdoor unit below indoor units	90.0m
Maximum height difference in technical cooling, outdoor unit above indoor units	90.0m
Maximum height difference between indoor units	30.0m
Connection ratio range	50.0% - 130.0%
Refrigerant pipe diameters	1/2" (liquid) x 7/8" (gas) x 3/4" (discharge)
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET (size up of intermediate pipes required if longer)	-
Maximum equivalent length from BP unit or VRV indoor to VRV REFNET	90.0m
Maximum actual length between CM and HM	-
Maximum height difference between CM and HM	-

Piping diagrams

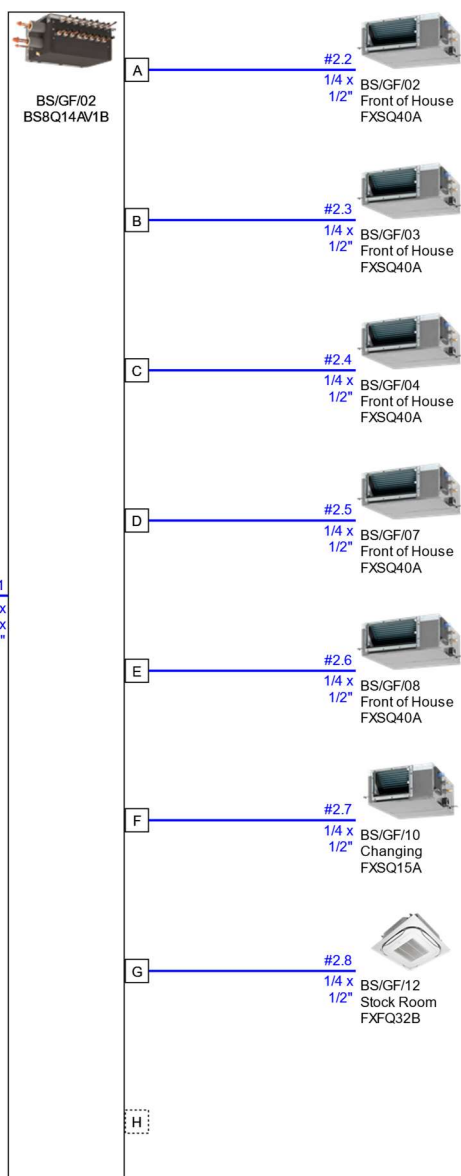
Piping Level 0 - System 1



Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

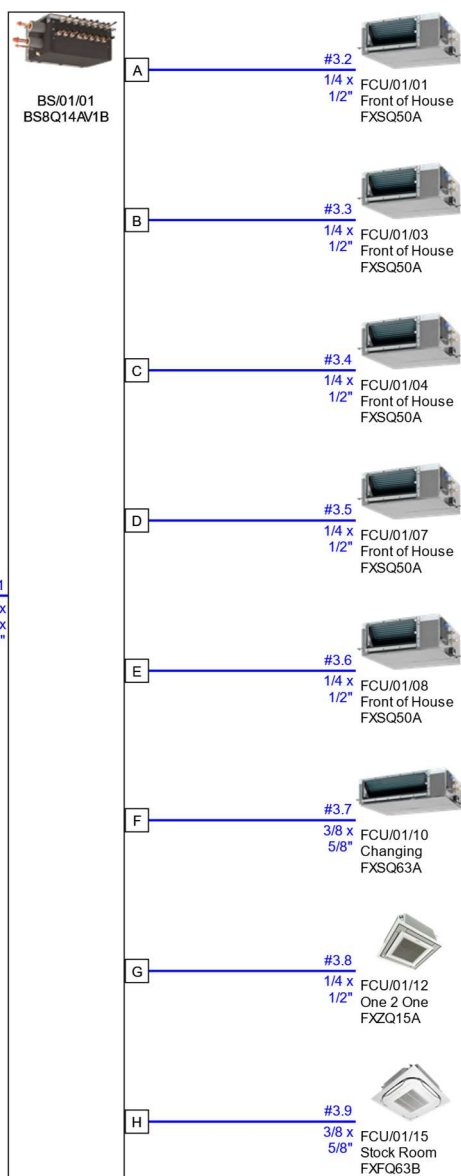
Level 0 - Sy...
REYQ10U



Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

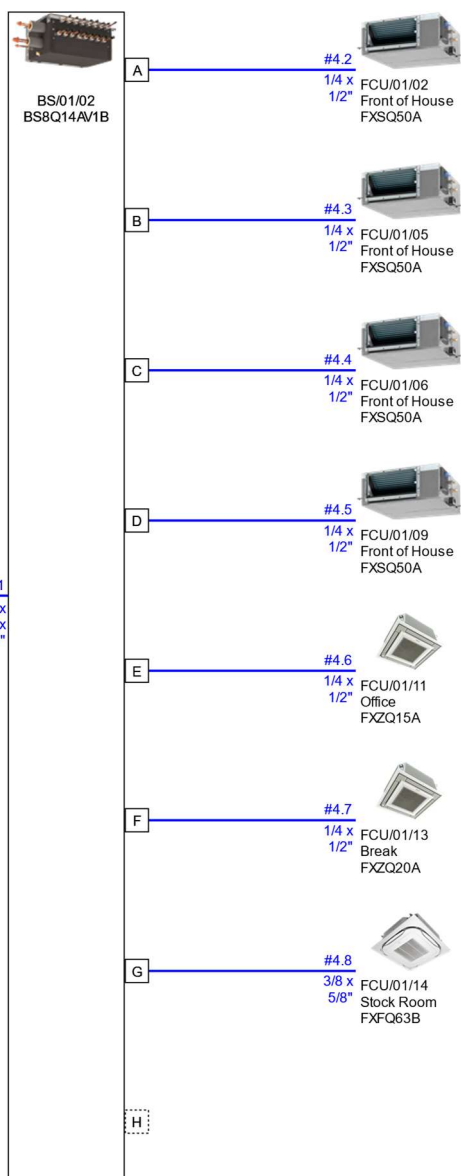
Level 1 - Sy...
REYQ12U



Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.

Level 1 - Sy...
REYQ10U



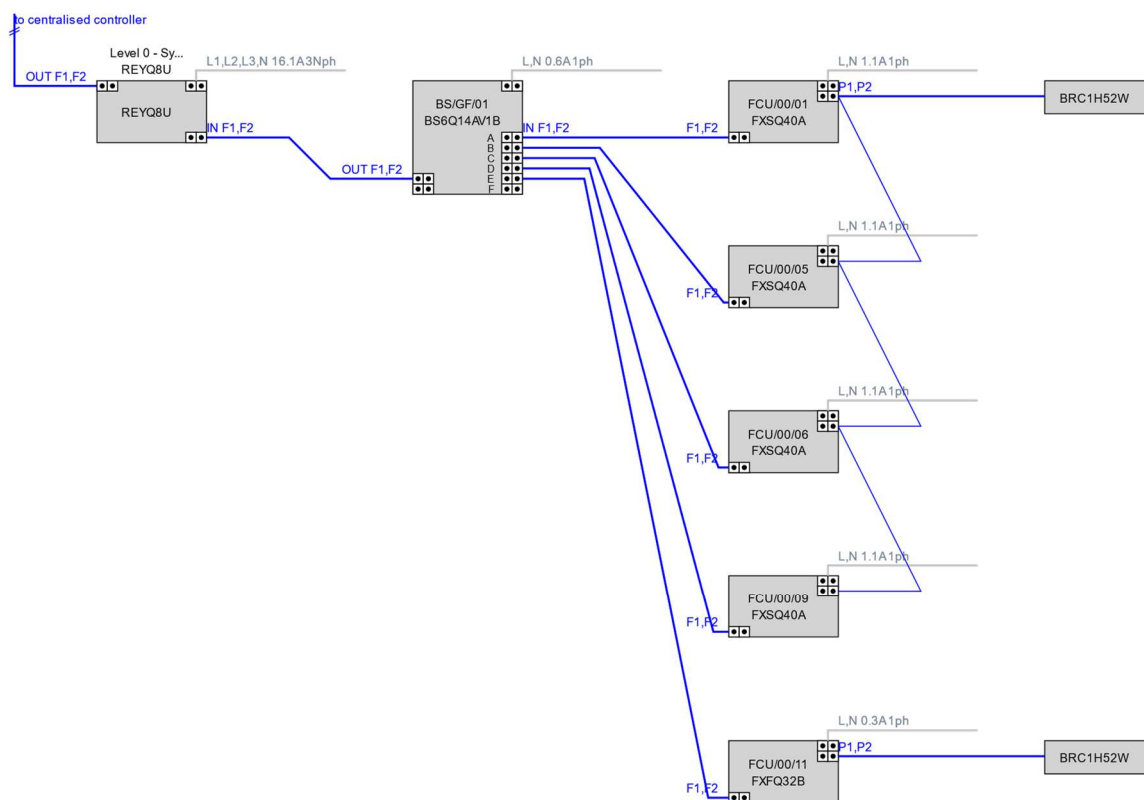
Piping

Warning: The pipe diameter values are purely indicative. Depending on the required pipe lengths, a different pipe diameter might be required.



Wiring diagrams

Wiring Level 0 - System 1

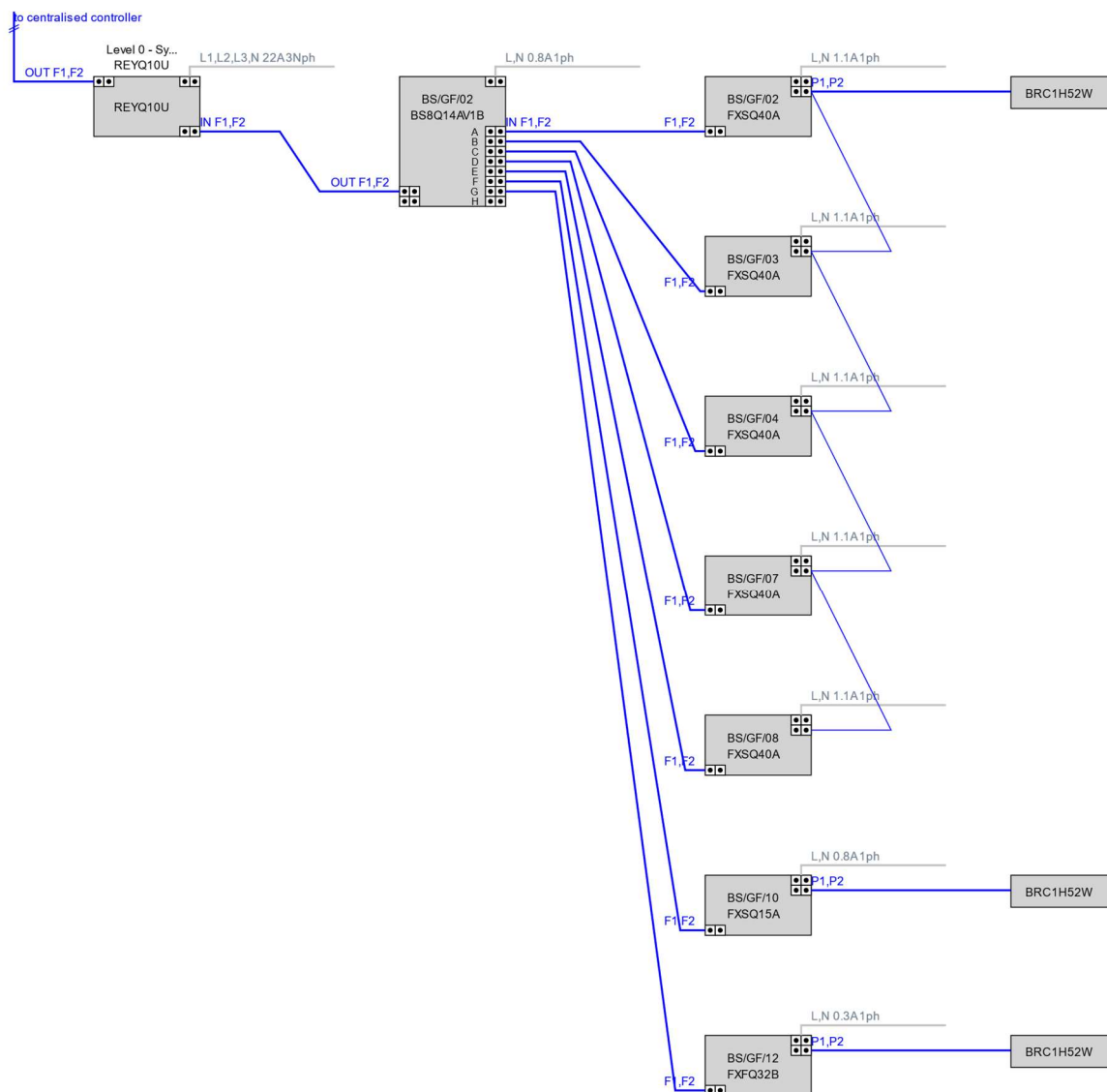


Remarks

P1P2 = 0,75 - 1,25 mm², max 500m length - always refer to local code for further information.

F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!

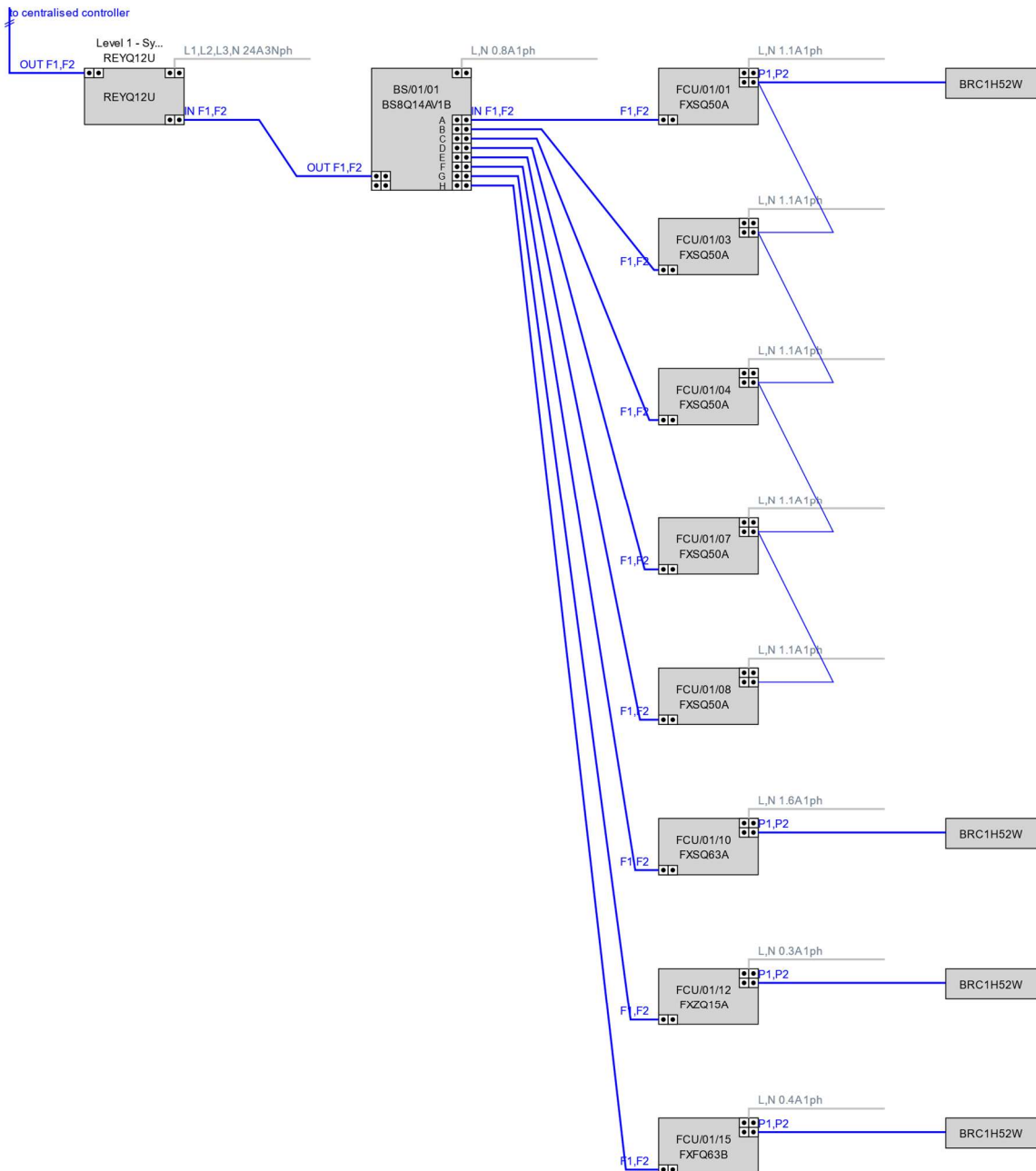


Remarks

P1P2 = 0,75 - 1,25 mm², max 500m length - always refer to local code for further information.

F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!

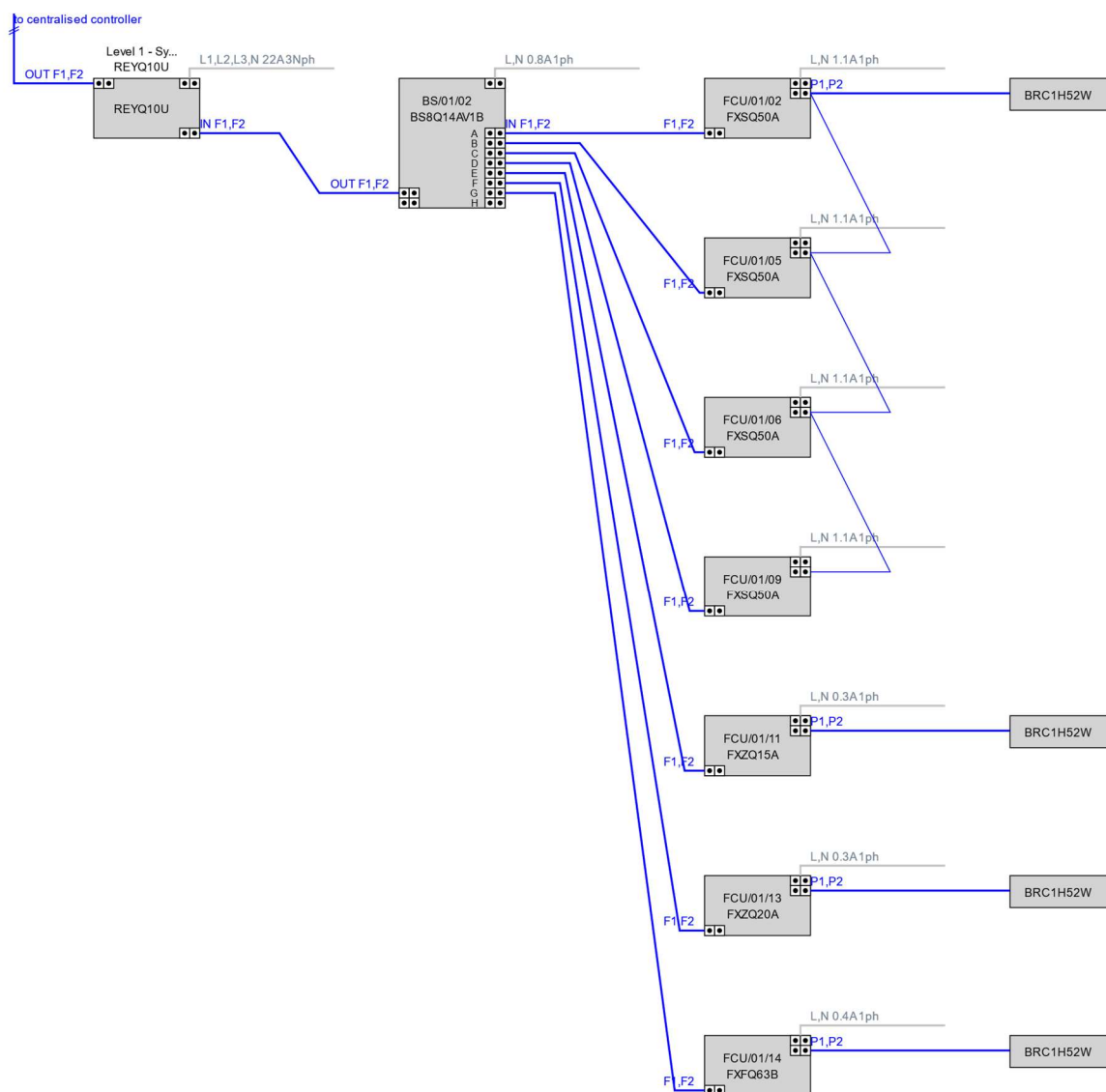


Remarks

P1P2 = 0,75 - 1,25 mm², max 500m length - always refer to local code for further information.

F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!



Remarks

P1P2 = 0,75 - 1,25 mm², max 500m length - always refer to local code for further information.

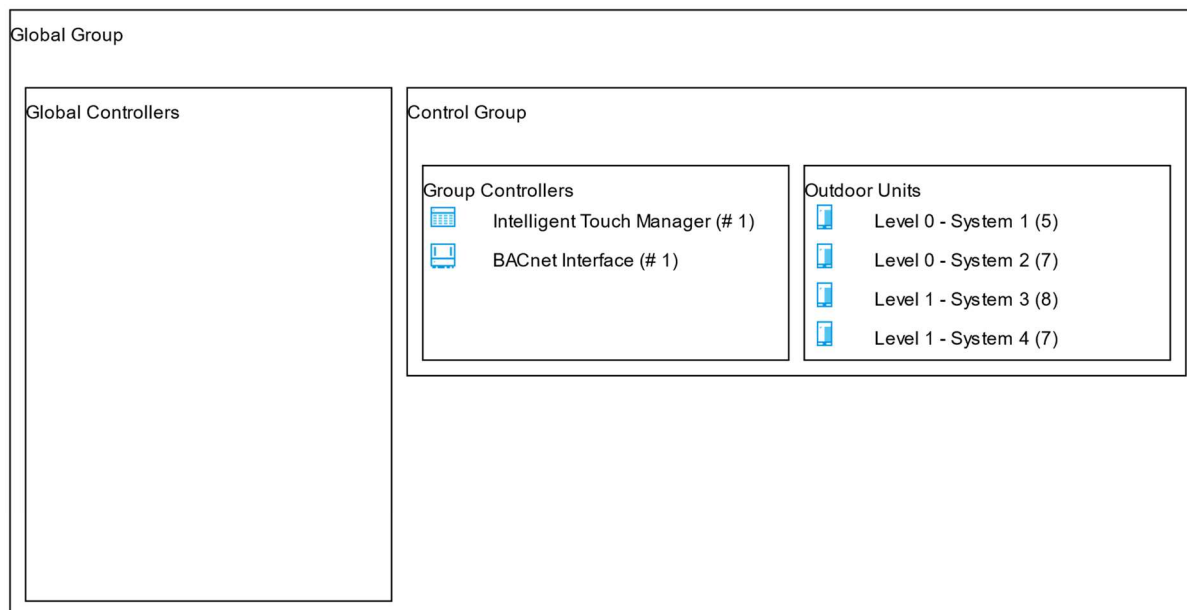
F1F2 IN/OUT transmission wiring, use 2-core wires of 0,75 to 1,25 mm² size cables, without shield (but shielded cable can be used if required by local regulations and standards).

Note: The shield should only be earthed at outdoor unit side, not at the indoor units!



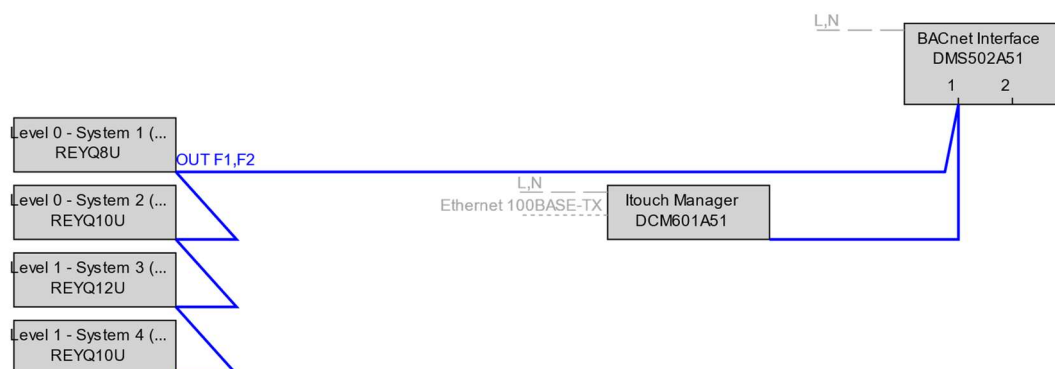
Centralised controllers

Concept



Controller wiring diagrams

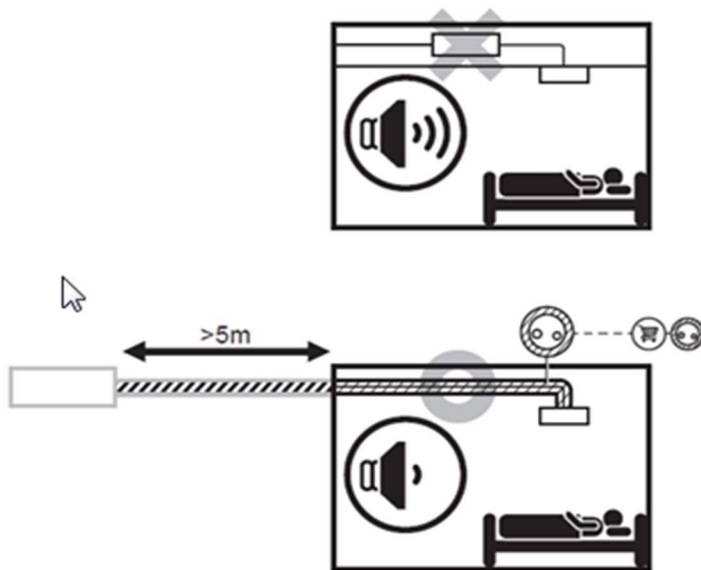
Control Group



Best Practices

Multi BS-box

- Install the multi BS-box on a location where the refrigerant noise cannot disturb the room occupants
- To avoid that refrigerant noise disturbs the people in the room, keep at least 5m piping length between the occupied room and the multi BS unit (See figure)
- If there is no false ceiling in the occupied room, please add sound insulation around the piping between the multi BS-box and indoor unit, or keep much longer length between multi BS-box unit and occupied room (See figure)



Residual Current Circuit Breaker

For better protection of installations against the risk of fire, power supply of indoor and outdoor units must be protected with a Residual Current Circuit Breaker. For protection against fire, we recommend a sensitivity of 300mA. The selected RCCB should be of the type B, suitable for inverter devices and indicated by the symbols here below. Further electrical characteristics of the RCCB must be selected in accordance with local regulation.



For a complete list of all required safety precautions, warnings and attention points, please consult the “general safety precautions manual” delivered with the unit.