Airwell

Service Manual

Multi Split Cinco DCI

Indoor Units			Outdoor Units
Type	**Image**	**Model**	**Model**
Wall mounted		*PNX 009*	 **CINCO 100 DCI YAZ5036-H11**
		PNX 012	
		PNX 018	
		PNX 021	
		PNX 024	
		*HFD 007*	
		HFD 009	
		HFD 012	
		HFD 018	
		*HAD 007*	
		HAD 009	
		HAD 012	
		HAD 018	
		HAD 021	
		HAD 024	
		*XLF 009*	
		XLF 012	
Cassette		*CK 009*	
		CK 012	
		CK 018	
		CK 021	
		CK 024	
Floor / Ceiling		*PXD 009*	
		PXD 012	
		PXD 018	
		PXD 021	
		PXD 024	
Low Silhouette		*DLF 009*	
		DLF 012	
		DLF 018	
		DLF 021	
		DLF 024	
Ducted		*DLS 018*	
		DLS 021	
		DLS 024	

REFRIGERANT

R410A

HEAT PUMP

SM CINCO 1-A.1 GB

MAY – 2010

LIST OF EFFECTIVE PAGES

Note: Changes in the pages are indicated by a “Revision#” in the footer of each effected page (when none indicates no changes in the relevant page). All pages in the following list represent effected/ non effected pages divided by chapters.

Dates of issue for original and changed pages are:

Original ..... 0 ..... MAY 2010

Total number of pages in this publication is **148** consisting of the following:

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*Due to constant improvements please note that the data on this service manual can be modified with out notice.
**Photos are not contractual

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1. INTRODUCTION

1.1 General

The **Cinco DCI Multi** is a total Multi System in one unit: **Duo/Trio/Quattro/Cinco.**
The multi-split inverter is a high level technology product for residential and commercial application offering comfort, low noise operation and energy saving.

1.2 Main Features

1.2.1 High Technology

- Sine wave form in both OFAN and Compressor drives.
- DC-BL-SL (DC Brush less Sensor less) Inverter Compressor.
- DC-BL Inverter Outdoor fan.
- Fuzzy Logic Control

1.2.2 System Features

- Variable cooling and heating capacity from 30% to 115% (of rated caoacity).
- High COP (“A” class energy rating)
- Low noise levels
- IAQ (Indoor Air Quality) features (LEX series)
- Lego concept - Products line of wall mounted, floor/ceiling, cassette, ducted with capacity models of 2.2, 2.5, 3.5, 5.0, 6.0 and 7.2 kW.
- Networking connectivity.
- Pre-charged system up to 30m.
- Tubing total length up to 80m / 25m length for each indoor brench.
- Tubing height difference up to 30m / 15m heigth for each indoor brench.
- Dry contact inputs:
    - Stand-by
    - Night Mode (for silent operation in cool and heat mode)
    - Power Shedding (to control maximum power consumption)
- Dry contact output:
    - Alarm
    - Base Heater
    - Crank Case Heater
- Cooling operation at outdoor temperature down to -10^{0}C.
- Heating operation at outdoor temperature down to -15^{0}C.
- HMI Display (Human-Machine Interface) – consists of 7-segment shows both indoor and outdoor diagnostics and setting up features.
- Installation test to detect installation errors and guidance to solve them.
- Monitoring softwear (PC port).
- EEV (Electronic Expansion Valve) for each indoor unit.
- Low and high pressure cut-off sensore for system protection.

1.3 Tubing Connections

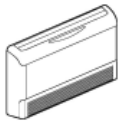
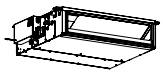
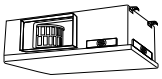
- Flare type interconnecting tubing to be produced on site.
- For further details please refer to APPENDIX A on this manual, and to the relevant indoor service Manual.

1.4 Inbox Documentation

- Outdoor unit is supplied with its installation manual and flare type adaptor connectors.
- Each indoor unit is supplied with its own installation and operation manuals.

1.5 Matching Table

R410A

Indoor unit				Indoor Unit Capacity [kW] (kBtu/h)					
Type	Model		Dimensions (W x D x H) mm	2.2 (7)	2.5 (9)	3.5 (12)	5.0 (18)	6.0 (21)	7.0 (24)
Wall- Mounted		LEX/ PNX	810x210x285		♦	♦			
			1060x221x295				♦	♦	♦
		HFD/ DELTA	680x185x250	♦	♦				
			840x185x250			♦			
			900x205x295				♦		
		HAD	676x188x250	♦	♦				
			840x188x250			♦			
			1060x210x295				♦	♦	♦
		XLF/ TOP	570x160x570		♦	♦			
Cassette		CK/ CN	575x575x219		♦	♦			
			575x575x270				♦	♦	♦
Floor / Ceiling		SX/ PXD	820x190x630		♦	♦			
			1200x190x630				♦	♦	♦
Ducted		DLF/ LSN	750x629x200		♦	♦	♦		
			1050x629x200					♦	♦
		DLS/ DNG	790x749x256				♦	♦	♦

1.6 Indoor Unit combinations

Duo		Trio			Quattro				Cinco				
Unit D	*Unit E*	*Unit A/B/C*	*Unit D*	*Unit E*	*Unit A/B*	*Unit C*	*Unit D*	*Unit E*	*Unit A*	*Unit B*	*Unit C*	*Unit D*	*Unit E*
18	18	7	7	21	7	7	7	12	7	7	7	7	7
18	21	7	7	24	7	7	7	18	7	7	7	7	9
18	24	7	9	21	7	7	7	21	7	7	7	7	12
21	21	7	9	24	7	7	7	24	7	7	7	7	18
21	24	7	12	18	7	7	9	12	7	7	7	9	9
24	24	7	12	21	7	7	9	18	7	7	7	9	12
		7	12	24	7	7	9	21	7	7	7	9	18
		7	18	18	7	7	9	24	7	7	7	12	12
		7	18	21	7	7	12	12	7	7	9	9	9
		7	18	24	7	7	12	18	7	7	9	9	12
		9	9	18	7	7	12	21	7	7	9	12	12
		9	9	21	7	7	18	18	7	9	9	9	9
		9	9	24	7	9	9	12	7	9	9	9	12
		9	12	18	7	9	9	18	7	9	9	12	12
		9	12	21	7	9	9	21	9	9	9	9	9
		9	12	24	7	9	9	24	9	9	9	9	12
		9	18	18	7	9	12	12	9	9	9	9	18
		9	18	21	7	9	12	18	9	9	9	12	12
		9	18	24	7	9	12	21					
		9	21	21	9	9	9	9					
		12	12	12	9	9	9	12					
		12	12	18	9	9	9	18					
		12	12	21	9	9	9	21					
		12	12	24	9	9	9	24					
		12	18	18	9	9	12	12					
		12	18	21	9	9	12	18					
					9	9	12	21					
					9	9	18	18					
					9	12	12	12					
					9	12	12	18					
					12	12	12	12					

2. PRODUCT DATA SHEET

2.1 Outdoor Unit Specifications.

Model				Cinco 100 DCI / YAZ5036-H11	
Operation Mode				Cooling	Heating
Starting Current			A	< 10	
Circuit Breaker Current			A	25	
Power Supply			V/Ph/Hz	220-240V/ 1PH / 50Hz	
INDOOR				See DCI Single	
OUTDOOR	Refrigerant control			Electronic expansion valve	
	Compressor type			Twin Rotary DC Inverter	
	Model			Sanyo C-7RVN153HOW	
	Protection device			Outdoor SW control, HPS, LPS	
	Heat exchanger			Hydrophilic corrugated fins ,Grooved tubes	
	Fan x No.			Propeller x 2	
	Airflow		m^3/hr	4,150	
	Motor output		W	2 x 50	
	Sound level (1)	Pressure	dB(A)	57	59
		Power		68	69
	Dimensions	WxDxH	mm	900 x 970 x 340	
	Weight		Kg	80	
	Package	WxDxH	mm	985 x 1020 x 435	
	Packaged Weight		Kg	85	
	Units per pallet		Units	6	
	Stacking height		Units	2	
TUBING	Refrigerant Charge (Precharged)		g (m)	3,000 (30m)	
	Additional charge (30-80m)		g	400	
	Tube size O.D.	Liquid	mm	5 x 6.35	
		Suction	mm	3x 9.53 + 2x 12.7	
	Connection method between the indoor and outdoor units	Indoor & outdoor		Flared	
		Height difference between indoor units		Max.15m	
		Height difference between indoor & outdoor		Max.15m	
		Tubing length		Max.25m for one unit and 80m total	
Operation control type				LCD Remote Control	
Heating elements			kW	BH 70W (Optional)	
Others					

Notes:

(1) Sound pressure level measured at 1 meter distance from unit at nominal (cool/heat) conditions.

2.2 Outdoor Unit Capacity

2.2.1 Cinco (HAD)

Model	ODU	Cinco 100 DCI / YAZ5036-H11	
	IDU	HAD 22+ HAD 22+ HAD 22 + HAD 22+ HAD 22	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	32,400 (13,650 -34,800)	38,560 (13,650-37,530)
	kW	9.5 (4.0-10.2)	11.3 (4.0-11.5)
Total Input	W	2,940 (780-3,500)	2,940 (780-3,500)
E.E.R (Cooling) / C.O.P (Heating)	W/W	3.05	3.80
Running Current (3)	A	13.0	13.0

2.2.2 Cinco (LEX)

Model	ODU	Cinco 100 DCI / YAZ5036-H11	
	IDU	LEX 25+ LEX 25+ LEX 25 + LEX 25+ LEX 25	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	34,120 (14,710-37,530)	40,940 (14,710-42,650)
	kW	10.0(4.3-11.0)	12.0 (4.3-12.5)
Total Input	W	2,940 (780-3,500)	2,940 (780-3,500)
E.E.R (Cooling) / C.O.P (Heating)	W/W	3.15	4.20
Running Current (3)	A	13.0	13.0

2.2.3 Quattro (LEX)

Model	ODU	Quattro 100 DCI / YAZ5036-H11	
	IDU	LEX 25+LEX 25+LEX 25 +LEX 25	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	30,030 (11,600-33,440)	34,120 (11,600-35,830)
	kW	8.8 (3.4-9.8)	10.0 (3.4-10.5)
Total Input	W	2,330 (810-2,670)	2,080 (810-2,670)
E.E.R (Cooling) / C.O.P (Heating)	W/W	3.77	4.63
Running Current (3)	A	10.4	9.25

2.2.4 Trio (LEX)

Model	ODU	Trio 100 DCI / YAZ5036-H11	
	IDU	LEX 35+LEX 35+LEX 35	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	29,000 (10,240-32,410)	35,480 (10,240-38,810)
	kW	8.5 (3.0-9.5)	10.4 (3.0-11.4)
Total Input	W	2,510 (720-2,910)	2,390 (720-2,910)
E.E.R (Cooling) / C.O.P (Heating)	W/W	3.38	4.35
Running Current (3)	A	11.2	10.6

2.2.5 Duo (LEX 50)

Model	ODU	Duo 100 DCI / YAZ5036-H11	
	IDU	LEX 50 +LEX 50	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	30,710(9,030-37,530)	35,960 (9,030-39,240)
	kW	9.0 (2.6-11.0)	10.0 (2.6-11.5)
Total Input	W	3,000 (590-3,160)	2,940 (590-3,160)
E.E.R (Cooling) / C.O.P (Heating)	W/W	3.0	3.58
Running Current (3)	A	13.3	13.1

2.2.6 Duo (LEX 60)

Model	ODU	Duo 100 DCI / YAZ5036-H11	
	IDU	LEX 60+LEX 60	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	31,560 (9,630-37,530)	36,370 (9,630-40,090)
	kW	9.3 (2.8-11.0)	10.7 (2.8-11.8)
Total Input	W	3,170 (550-3,200)	3,020 (550-3,200)
E.E.R (Cooling) / C.O.P (Heating)	W/W	2.92	3.53
Running Current (3)	A	14.05	13.4

2.2.7 Duo (LEX 72)

Model	ODU	Duo 100 DCI / YAZ5036-H11	
	IDU	LEX 72+LEX 72	
Operation Mode		Cooling	Heating
Capacity (2) Nominal (minimum–Maximum)	Btu/hr	32,410 (10,240-37,530)	36,780 (10,240-40,940)
	kW	9.5 (3.0-11.0)	10.8 (3.0-12.0)
Total Input	W	3,330 (550-3,400)	3,090 (550-3,440)
E.E.R (Cooling) / C.O.P (Heating)	W/W	2.85	3.49
Running Current (3)	A	14.8	13.7

Notes:

(2) Rating conditions in accordance with ISO 5151, ISO 13253 (for ducted units) EN 14511 and EUROVENT.

(3) Running Current is measured in nominal conditions at 230V

2.3 Indoor Units Data

2.3.1 PNX009 DCI Specifications

Model Indoor Unit				**PNX009 DCI**
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1050/900/800
	Air flow(1)	H/M/L	m3/hr	530/430/330
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	51/ - /39
	Sound pressure level(3)	H/M/L	dB(A)	39/ - /26
	Moisture removal		l/hr	1
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	810x285x210
	Net Weight		kg	11.5
	Package dimensions	WxHxD	mm	870x356x282
	Packaged weight		kg	14
	Units per pallet		units	28
	Stacking height		units	7 levels

2.3.2 PNX012 DCI Specifications

Model Indoor Unit				**PNX012 DCI**
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1100/950/800
	Air flow(1)	H/M/L	m3/hr	550/450/350
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	52/ - /39
	Sound pressure level(3)	H/M/L	dB(A)	40/ - /26
	Moisture removal		l/hr	1.5
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	810x285x210
	Net Weight		kg	11.5
	Package dimensions	WxHxD	mm	870x356x282
	Packaged weight		kg	14
	Units per pallet		units	28
	Stacking height		units	7 levels

2.3.3 PNX018 DCI Specifications

Model Indoor Unit				**PNX018 DCI**
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1200/1050/900
	Air flow(1)	H/M/L	m3/hr	850/700/550
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	55/51/47
	Sound pressure level(3)	H/M/L	dB(A)	43/39/34
	Moisture removal		l/hr	2
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	1060x295x221
	Net Weight		kg	15
	Package dimensions	WxHxD	mm	1125x360x295
	Packaged weight		kg	18
	Units per pallet		units	16
	Stacking height		units	8 levels

2.3.4 PNX021 DCI Specifications

Model Indoor Unit / Type				PNX021 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow *1		
	Fan speed	H/M/L	RPM	1250	1100	1000
	Airflow(2)	H/M/L	m^3/hr	900	760	620
	External static pressure	Min-Nom-Max	Pa		-	
	Sound Power Level(3)	H/M/L	dB (A)	56	53	48
	Sound Pressure Level (4)	H/M/L	dB (A)	45	40	34
	Moisture removal		l/h		2.0	
	Condensate Drain Tube I.D.		mm		16	
	Dimensions	W/H/D	mm	1060	295	221
	Weight		kg		15	
	Package Dimensions	W/H/D	mm	1125	360	295
	Packeged wight		Kg		18	
	Units per pallet				16	
	Stacking Height		Units		8	

2.3.5 PNX024 DCI Specifications

Model Indoor Unit / Type				PNX024 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow *1		
	Fan speed	H/M/L	RPM	1300	1150	1000
	Airflow(2)	H/M/L	m^3/hr	950	800	650
	External static pressure	Min-Nom-Max	Pa		-	
	Sound Power Level(3)	H/M/L	dB (A)	60	54	47
	Sound Pressure Level (4)	H/M/L	dB (A)	47	41	34
	Moisture removal		l/h		2.5	
	Condensate Drain Tube I.D.		mm		16	
	Dimensions	W/H/D	mm	1060	295	221
	Weight		kg		15	
	Package Dimensions	W/H/D	mm	1125	360	295
	Packeged wight		Kg		18	
	Units per pallet				16	
	Stacking Height		Units		8	

2.3.6 HFD007 DCI Specifications

Model Indoor Unit / Type				HFD007 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow x1		
	Fan speed	H/M/L	RPM	1100	950	800
	Airflow(2)	H/M/L	m^3/hr	400	350	300
	External static pressure	Min-Nom-Max	Pa		-	
	Sound Power Level(3)	H/M/L	dB (A)	49	46	43
	Sound Pressure Level (4)	H/M/L	dB (A)	36	33	30
	Moisture removal		l/h		1.0	
	Condensate Drain Tube I.D.		mm		16	
	Dimensions	W/H/D	mm	680	250	185
	Weight		kg		7	
	Package Dimensions	W/H/D	mm	740	265	320
	Packeged wight		Kg		10	
	Units per pallet				36	
	Stacking Height		Units		9	

2.3.7 HFD009 DCI Specifications

Model Indoor Unit				HFD009 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1200/1050/850
	Air flow(1)	H/M/L	m3/hr	420/350/270
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	54/50/47
	Sound pressure level(3)	H/M/L	dB(A)	39/35/32
	Moisture removal		l/hr	1
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	680x250x185
	Net Weight		kg	7
	Package dimensions	WxHxD	mm	740x320x265
	Packaged weight		kg	10
	Units per pallet		units	36 units per pallet
	Stacking height		units	9 levels

2.3.8 HFD012 DCI Specifications

Model Indoor Unit				HFD012 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1200/1000/850
	Air flow(1)	H/M/L	m3/hr	550/450/350
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	56/50/46
	Sound pressure level(3)	H/M/L	dB(A)	39/33/29
	Moisture removal		l/hr	1.5
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	840x250x185
	Net Weight		kg	8
	Package dimensions	WxHxD	mm	930x320x265
	Packaged weight		kg	11
	Units per pallet		units	36 units per pallet
	Stacking height		units	9 levels

2.3.9 HFD018 DCI Specifications

Model Indoor Unit				HFD018 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1230/1100/900
	Air flow(1)	H/M/L	m3/hr	720/620/480
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	56/54/47
	Sound pressure level(3)	H/M/L	dB(A)	44/41/34
	Moisture removal		l/hr	2
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	900x295x205
	Net Weight		kg	11
	Package dimensions	WxHxD	mm	960x360x270
	Packaged weight		kg	14
	Units per pallet		units	24 units per pallet
	Stacking height		units	8 levels

2.3.10 HAD007 DCI Specifications

Model Indoor Unit / Type				HAD007 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow x1		
	Fan speed	H/M/L	RPM	1100	950	800
	Airflow(2)	H/M/L	m^3/hr	400	350	300
	External static pressure	Min-Nom-Max	Pa	-		
	Sound Power Level(3)	H/M/L	dB (A)	49	46	43
	Sound Pressure Level (4)	H/M/L	dB (A)	36	33	30
	Moisture removal		l/h	0.9		
	Condensate Drain Tube I.D.		mm	16		
	Dimensions	W/H/D	mm	680	250	185
	Weight		kg	7		
	Package Dimensions	W/H/D	mm	740	265	320
	Packeged wight		Kg	10		
	Units per pallet			36		
	Stacking Height		Units	9		

2.3.11 HAD009 DCI Specifications

Model Indoor Unit				HAD009 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1150/1000/800
	Air flow(1)	H/M/L	m3/hr	420/350/270
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	54
	Sound pressure level(3)	H/M/L	dB(A)	40/35/29
	Moisture removal		l/hr	1.0
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	680 x250 X188
	Net Weight		kg	7
	Package dimensions	WxHxD	mm	740x310x248
	Packaged weight		kg	10
	Units per pallet		units	32
	Stacking height		units	8

2.3.12 HAD012 DCI Specifications

Model Indoor Unit				HAD012 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Crossflow x 1
	Fan speeds	H/M/L	RPM	1150/950/750
	Air flow(1)	H/M/L	m3/hr	550/450/350
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	56
	Sound pressure level(3)	H/M/L	dB(A)	40/34/28
	Moisture removal		l/hr	1.5
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	840x250x188
	Net Weight		kg	8
	Package dimensions	WxHxD	mm	900x310x248
	Packaged weight		kg	11
	Units per pallet		units	32
	Stacking height		units	8

2.3.13 HAD021 DCI Specifications

Model Indoor Unit / Type				HAD021 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow *1		
	Fan speed	H/M/L	RPM	1250	1100	1000
	Airflow(2)	H/M/L	m^3/hr	900	760	620
	External static pressure	Min-Nom-Max	Pa	-		
	Sound Power Level(3)	H/M/L	dB (A)	56	53	48
	Sound Pressure Level (4)	H/M/L	dB (A)	45	40	34
	Moisture removal		l/h	2.0		
	Condensate Drain Tube I.D.		mm	16		
	Dimensions	W/H/D	mm	1060	295	221
	Weight		kg	15		
	Package Dimensions	W/H/D	mm	1125	360	295
	Packeged wight		Kg	18		
	Units per pallet			16		
	Stacking Height		Units	8		

2.3.14 HAD024 DCI Specifications

Model Indoor Unit / Type				HAD024 DCI / Wall Mounted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Crossflow *1		
	Fan speed	H/M/L	RPM	1300	1150	1000
	Airflow(2)	H/M/L	m^3/hr	950	800	650
	External static pressure	Min-Nom-Max	Pa	-		
	Sound Power Level(3)	H/M/L	dB (A)	60	54	47
	Sound Pressure Level (4)	H/M/L	dB (A)	47	41	34
	Moisture removal		l/h	2.5		
	Condensate Drain Tube I.D.		mm	16		
	Dimensions	W/H/D	mm	1060	295	221
	Weight		kg	15		
	Package Dimensions	W/H/D	mm	1125	360	295
	Packeged wight		Kg	18		
	Units per pallet			16		

2.3.15 XLF009 DCI Specifications

Model Indoor Unit				XLF009 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Helicoid x 1
	Fan speeds	H/M/L	RPM	520/490/450
	Air flow(1)	H/M/L	m3/hr	390/370/330
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	55
	Sound pressure level(3)	H/M/L	dB(A)	38/35/32
	Moisture removal		l/hr	1
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	570x570x160
	Net Weight		kg	13.5
	Package dimensions	WxHxD	mm	700x700x255
	Packaged weight		kg	15.5
	Units per pallet		units	16
	Stacking height		units	8levels

2.3.16 XLF012 DCI Specifications

Model Indoor Unit				XLF012 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Helicoid x 1
	Fan speeds	H/M/L	RPM	540/510/450
	Air flow(1)	H/M/L	m3/hr	400/370/310
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	56
	Sound pressure level(3)	H/M/L	dB(A)	39/36/33
	Moisture removal		l/hr	1.6
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	570x570x160
	Net Weight		kg	14
	Package dimensions	WxHxD	mm	700x700x255
	Packaged weight		kg	16
	Units per pallet		units	16
	Stacking height		units	8evels

2.3.17 CK009 DCI Specifications

Model Indoor Unit				CK009 DCI	
Installation Method of Pipe				Flared	
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz	
INDOOR	Fan type & quantity			Centrifugal x 1	
	Fan speeds	H/M/L	RPM	550/500/450	600/520/450
	Air flow(1)	H/M/L	m3/hr	420/370/320	470/390/320
	External static pressure	Min	Pa	0	
	Sound power level(2)	H/M/L	dB(A)	49	49
	Sound pressure level(3)	H/M/L	dB(A)	32/30/28	34/31/28
	Moisture removal		l/hr	0.7	
	Condenstate drain tube I.D		mm	20	
	Dimensions	WxHxD	mm	575X575X219(625X625X40/725X725X40)	
	Net Weight		kg	12.9(2.2/2.7)	
	Package dimensions	WxHxD	mm	681X681X297(700X700X103/800X800X103)	
	Packaged weight		kg	16.2(3.4/4.2)	
	Units per pallet		units	12	
	Stacking height		units	6 levels	

2.3.18 CK012 DCI Specifications

Model Indoor Unit				CK012 DCI	
Installation Method of Pipe				Flared	
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz	
INDOOR	Fan type & quantity			Centrifugal x 1	
	Fan speeds	H/M/L	RPM	600/520/450	650/550/450
	Air flow(1)	H/M/L	m3/hr	470/390/320	510/420//320
	External static pressure	Min	Pa	0	
	Sound power level(2)	H/M/L	dB(A)	51	51
	Sound pressure level(3)	H/M/L	dB(A)	34/31/28	36/32/28
	Moisture removal		l/hr	1.5	
	Condenstate drain tube I.D		mm	20	
	Dimensions	WxHxD	mm	575X575X219(625X625X40/725X725X40)	
	Net Weight		kg	12.9(2.2/2.7)	
	Package dimensions	WxHxD	mm	681X681X297(700X700X103/800X800X103)	
	Packaged weight		kg	16.2(3.4/4.2)	
	Units per pallet		units	12	
	Stacking height		units	6 levels	

2.3.19 CK018 DCI Specifications

Model Indoor Unit				CK018 DCI	
Installation Method of Pipe				Flared	
Power supply			V/Ph/Hz	220-230V/1 Ph/50 Hz	
INDOOR	Fan type & quantity			Centrifugal x 1	
	Fan speeds	H/M/L	RPM	680/620/550	680/620/550
	Air flow(1)	H/M/L	m3/hr	620/560/500	620/560/500
	External static pressure	Min	Pa	0	
	Sound power level(2)	H/M/L	dB(A)	54	54
	Sound pressure level(3)	H/M/L	dB(A)	36/33/30	36/33/30
	Moisture removal		l/hr	2.0	
	Condenstate drain tube I.D		mm	20	
	Dimensions	WxHxD	mm	575X575X270(625X625X40/725X725X40)	
	Net Weight		kg	15.2(2.2/2.7)	
	Package dimensions	WxHxD	mm	681X681X348(700X700X103/800X800X103)	
	Packaged weight		kg	18.7(3.4/4.2)	
	Units per pallet		units	12	
	Stacking height		units	6 levels	

2.3.20 CK021 DCI Specifications

Model Indoor Unit / Type				CK021 DCI / Cassette	
Operation Mode				**Cool**	**Heat**
Installation Method of pipe				FLARE	
Power Supply			V/Ph/Hz	220-240 / 1/ 50	
INDOOR	Fan Type & Quantity			Centrifulgal *1	
	Fan speed	H/M/L	RPM	800 / 710 / 600	800 / 700 / 600
	Airflow(2)	H/M/L	m^3/hr	800	800
	External static pressure	Min-Nom-Max	Pa	-	
	Sound Power Level(3)	H/M/L	dB (A)	58	58
	Sound Pressure Level (4)	H/M/L	dB (A)	41 / 33	41 / 33
	Moisture removal		l/h	2.6	
	Condensate Drain Tube I.D.		mm	20	
	Dimensions	W/H/D	mm	575x575x219 (625x625x40 / 725x725x40	
	Weight		kg	15.2 (2.2 / 2.7)	
	Package Dimensions	W/H/D	mm	681x681x297 (700x700x103 / 800x800x103	
	Packeged wight		Kg	17.7 (3.4 / 4.2)	
	Units per pallet			12	
	Stacking Height		Units	6	

2.3.21 CK024 DCI Specifications

Model Indoor Unit / Type				CK024 DCI / Cassette	
Operation Mode				**Cool**	**Heat**
Installation Method of pipe				FLARE	
Power Supply			V/Ph/Hz	220-240 / 1/ 50	
INDOOR	Fan Type & Quantity			Centrifulgal *1	
	Fan speed	H/M/L	RPM	850 / 750 / 650	850 / 750 / 650
	Airflow(2)	H/M/L	m^3/hr	830	830
	External static pressure	Min-Nom-Max	Pa	-	
	Sound Power Level(3)	H/M/L	dB (A)	60	60
	Sound Pressure Level (4)	H/M/L	dB (A)	43 / 35	43 / 35
	Moisture removal		l/h	2.6	
	Condensate Drain Tube I.D.		mm	20	
	Dimensions	W/H/D	mm	575x575x219 (625x625x40 / 725x725x40	
	Weight		kg	15.2 (2.2 / 2.7)	
	Package Dimensions	W/H/D	mm	681x681x297 (700x700x103 / 800x800x103	
	Packeged wight		Kg	18.7 (3.4 / 4.2)	
	Units per pallet			12	
	Stacking Height		Units	6	

2.3.22 SX009 DCI Specifications

Model Indoor Unit				SX009 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	760/670/500
	Air flow(1)	H/M/L	m3/hr	400/350/300
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	54/49/41
	Sound pressure level(3)	H/M/L	dB(A)	42/37/29
	Moisture removal		l/hr	1
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	820x630x190
	Net Weight		kg	21
	Package dimensions	WxHxD	mm	920x726x273
	Package weight		kg	25
	Units per pallet		units	14units per pallet
	Units stacking		units	7 levels

2.3.23 SX012 DCI Specifications

Model Indoor Unit				SX012 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	830/760/500
	Air flow(1)	H/M/L	m3/hr	450/400/300
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	56/53/41
	Sound pressure level(3)	H/M/L	dB(A)	45/41/30
	Moisture removal		l/hr	1.5
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	820x630x190
	Net Weight		kg	22
	Package dimensions	WxHxD	mm	920x726x273
	Package weight		kg	26
	Units per pallet		units	14units per pallet
	Units stacking		units	7 levels

2.3.24 SX018 DCI Specifications

Model Indoor Unit				SX018 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	1050/950/700
	Air flow(1)	H/M/L	m3/hr	870/750/600
	External static pressure	Min	Pa	0
	Sound power level(2)	H/M/L	dB(A)	65/60/53
	Sound pressure level(3)	H/M/L	dB(A)	51/48/40
	Moisture removal		l/hr	2
	Condenstate drain tube I.D		mm	16
	Dimensions	WxHxD	mm	1200x630x190
	Net Weight		kg	30
	Package dimensions	WxHxD	mm	1300x726x273
	Package weight	□	kg	35
	Units per pallet		units	7units per pallet
	Units stacking		units	7 levels

2.3.25 SX021 DCI Specifications

Model Indoor Unit / Type				SX012 DCI / Floor-Ceiling		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Centrifugal x2		
	Fan speed	H/M/L	RPM	1300	1200	1050
	Airflow(2)	H/M/L	m^3/hr	1020	930	760
	External static pressure	Min-Nom-Max	Pa	-		
	Sound Power Level(3)	H/M/L	dB (A)	67 / 64 / 60		
	Sound Pressure Level (4)	H/M/L	dB (A)	56 / 53 / 49		
	Moisture removal		l/h	2.5		
	Condensate Drain Tube I.D.		mm	16		
	Dimensions	W/H/D	mm	1200	630	190
	Weight		kg	32		
	Package Dimensions	W/H/D	mm	1300	726	273
	Packeged wight		Kg	36		
	Units per pallet			7		
	Stacking Height		Units	7		

2.3.26 SX024 DCI Specifications

Model Indoor Unit / Type				SX024 DCI / Floor-Ceiling		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Centrifugal x2		
	Fan speed	H/M/L	RPM	1300	1200	1050
	Airflow(2)	H/M/L	m^3/hr	1020	930	760
	External static pressure	Min-Nom-Max	Pa	-		
	Sound Power Level(3)	H/M/L	dB (A)	67 / 64 / 60		
	Sound Pressure Level (4)	H/M/L	dB (A)	56 / 53 / 49		
	Moisture removal		l/h	2.5		
	Condensate Drain Tube I.D.		mm	16		
	Dimensions	W/H/D	mm	1200	630	190
	Weight		kg	32		
	Package Dimensions	W/H/D	mm	1300	726	273
	Packeged wight		Kg	36		
	Units per pallet			7		
	Stacking Height		Units	7		

2.3.27 DLF009 DCI Specifications

Model Indoor Unit				**DLF009 DCI**
Installation Method of Pipe				DUCTED
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	920/810/740
	Air flow(1)	H/M/L	m3/hr	620/560/490
	External static pressure	Min -Max	Pa	0-30
	Sound power level(2)	H/M/L	dB(A)	50/47/44
	Sound pressure level(3)	H/M/L	dB(A)	29/26/23
	Moisture removal		l/hr	0.5
	Condenstate drain tube I.D		mm	19
	Dimensions	WxHxD	mm	750x630x200
	Net Weight		kg	20
	Package dimensions	WxHxD	mm	885x695x226
	Package weight		kg	23
	Units per pallet		units	14units per pallet
	Units stacking		units	7 levels

2.3.28 DLF012 DCI Specifications

Model Indoor Unit				DLF012 DCI
Installation Method of Pipe				DUCTED
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	980/860/730
	Air flow(1)	H/M/L	m3/hr	650/580/490
	External static pressure	Min-Max	Pa	0-30
	Sound power level(2)	H/M/L	dB(A)	53/49/45
	Sound pressure level(3)	H/M/L	dB(A)	31/27/24
	Moisture removal		l/hr	1.0
	Condenstate drain tube I.D		mm	19
	Dimensions	WxHxD	mm	750x630x200
	Net Weight		kg	20
	Package dimensions	WxHxD	mm	885x695x226
	Package weight		kg	23
	Units per pallet		units	14units per pallet
	Units stacking		units	7 levels

2.3.29 DLF018 DCI Specifications

Model Indoor Unit				DLF018 DCI
Installation Method of Pipe				DUCTED
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centifugal x 2
	Fan speeds	H/M/L	RPM	1100/980/860
	Air flow(1)	H/M/L	m3/hr	710/600/540
	External static pressure	Min-Max	Pa	0-40
	Sound power level(2)	H/M/L	dB(A)	54/51/48
	Sound pressure level(3)	H/M/L	dB(A)	35/32/29
	Moisture removal		l/hr	1.5
	Condenstate drain tube I.D		mm	19
	Dimensions	WxHxD	mm	750x630x200
	Net Weight		kg	21
	Package dimensions	WxHxD	mm	885x695x226
	Package weight		kg	24
	Units per pallet		units	14units per pallet
	Units stacking		units	7 levels

2.3.30 DLF021 DCI Specifications

Model Indoor Unit / Type				DLF021 DCI / Low Silouhette		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Centrifugal x2		
	Fan speed	H/M/L	RPM	1170	1050	960
	Airflow(2)	H/M/L	m^3/hr	1100	950	880
	External static pressure	Min-Nom-Max	Pa	0-40		
	Sound Power Level(3)	H/M/L	dB (A)	59	55	53
	Sound Pressure Level (4)	H/M/L	dB (A)	38	34	32
	Moisture removal		l/h	1.7		
	Condensate Drain Tube I.D.		mm	19		
	Dimensions	W/H/D	mm	1050	630	200
	Weight		kg	25		
	Package Dimensions	W/H/D	mm	1185	695	226
	Packeged wight		Kg	28		
	Units per pallet			14		
	Stacking Height		Units	7		

2.3.31 DLF024 DCI Specifications

Model Indoor Unit / Type				DLF024 DCI / Low Silouhette		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Centrifugal x2		
	Fan speed	H/M/L	RPM	1200	1050	980
	Airflow(2)	H/M/L	m^3/hr	115	950	900
	External static pressure	Min-Nom-Max	Pa	0-40		
	Sound Power Level(3)	H/M/L	dB (A)	63	59	56
	Sound Pressure Level (4)	H/M/L	dB (A)	39	35	32
	Moisture removal		l/h	2.0		
	Condensate Drain Tube I.D.		mm	19		
	Dimensions	W/H/D	mm	1050	630	200
	Weight		kg	25		
	Package Dimensions	W/H/D	mm	1185	695	226
	Packeged wight		Kg	28		
	Units per pallet			14		
	Stacking Height		Units	7		

2.3.32 DLS018 DCI Specifications

Model Indoor Unit				DLS018 DCI
Installation Method of Pipe				Flared
Power supply			V/Ph/Hz	220-240/1/50
INDOOR	Fan type & quantity			Centrifugal x 1
	Fan speeds	H/M/L	RPM	630/530/425
	Air flow(1)	H/M/L	m3/hr	1170/875/730
	External static pressure	Min	Pa	25
	Sound power level(2)	H/M/L	dB(A)	55/53/50
	Sound pressure level(3)	H/M/L	dB(A)	42/37/34
	Moisture removal		l/hr	1.0
	Condenstate drain tube I.D		mm	22
	Dimensions	WxHxD	mm	770x690x260
	Net Weight		kg	29
	Package dimensions	WxHxD	mm	959x854x315
	Packaged weight		kg	31
	Units per pallet		units	6
	Stacking height		units	6

2.3.33 DLS021 DCI Specifications

Model Indoor Unit / Type				DLS021 DCI / Ducted		
Installation Method of pipe				FLARE		
Power Supply			V/Ph/Hz	220-240 / 1/ 50		
INDOOR	Fan Type & Quantity			Centrifugal x1		
	Fan speed	H/M/L	RPM	680	530	425
	Airflow(2)	H/M/L	m^3/hr	1225	875	710
	External static pressure	Min-Nom-Max	Pa	25-70		
	Sound Power Level(3)	H/M/L	dB (A)	60 / 53 / 50		
	Sound Pressure Level (4)	H/M/L	dB (A)	43 / 37 / 34		
	Moisture removal		l/h	1.2		
	Condensate Drain Tube I.D.		mm	19		
	Dimensions	W/H/D	mm	790	749	256
	Weight		kg	29		
	Package Dimensions	W/H/D	mm	959	854	315
	Packeged wight		Kg	31		
	Units per pallet			6		
	Stacking Height		Units	6		

2.3.34 DLS024 DCI Specifications

Model Indoor Unit / Type				**DLS024 DCI / Ducted**			
Installation Method of pipe				**FLARE**			
Power Supply			V/Ph/Hz	220-240 / 1/ 50			
INDOOR	Fan Type & Quantity			Centrifugal x1			
	Fan speed	H/M/L	RPM	800	670	550	
	Airflow(2)	H/M/L	m^3/hr	1310	1115	890	
	External static pressure	Min-Nom-Max	Pa	25-75			
	Sound Power Level(3)	H/M/L	dB (A)	65 / 60 / 55			
	Sound Pressure Level (4)	H/M/L	dB (A)	47 / 43 / 38			
	Moisture removal		l/h	1.5			
	Condensate Drain Tube I.D.		mm	19			
	Dimensions	W/H/D	mm	790	749	256	
	Weight		kg	29			
	Package Dimensions	W/H/D	mm	959	854	315	
	Packeged wight		Kg	31			
	Units per pallet			6			
	Stacking Height		Units	6			

NOTE:

Rating conditions in accordance with ISO 5151 and ISO 13253 (for ducted units) and EN14511.
(2)Airflow in ducted units; at nominal external static pressure.
(3)Sound power in ducted units is measured at air discharge.
(4)Sound pressure level measured at 1 meter distance from unit.

3. RATING CONDITIONS

Standard conditions in accordance with ISO 5151, ISO 13253 (for ducted units) and EN 14511.

Cooling:
Indoor: 27°C DB 19°C WB
Outdoor: 35 °C DB

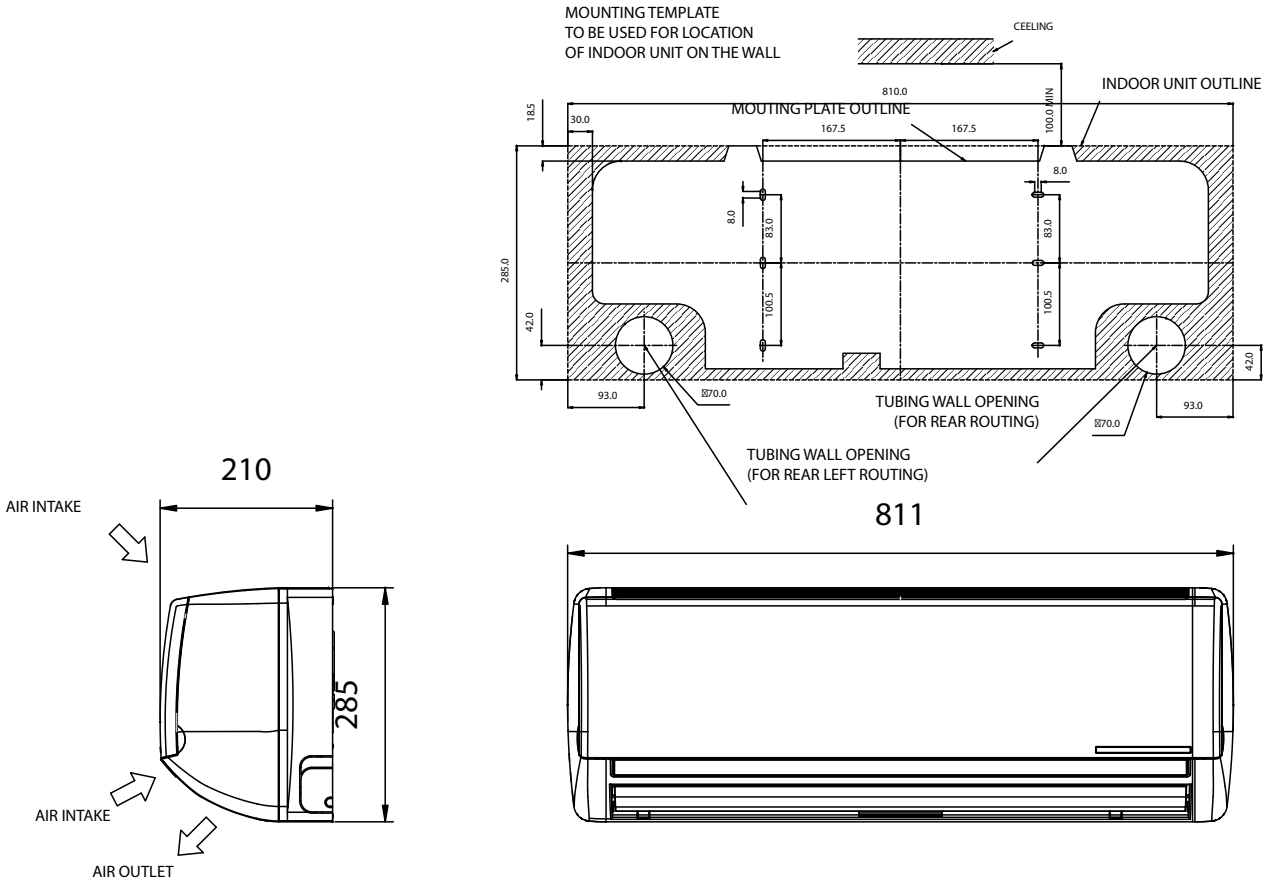
Heating:
Indoor: 20°C DB
Outdoor: 7°C DB 6°C WB

3.1 Operating Limits

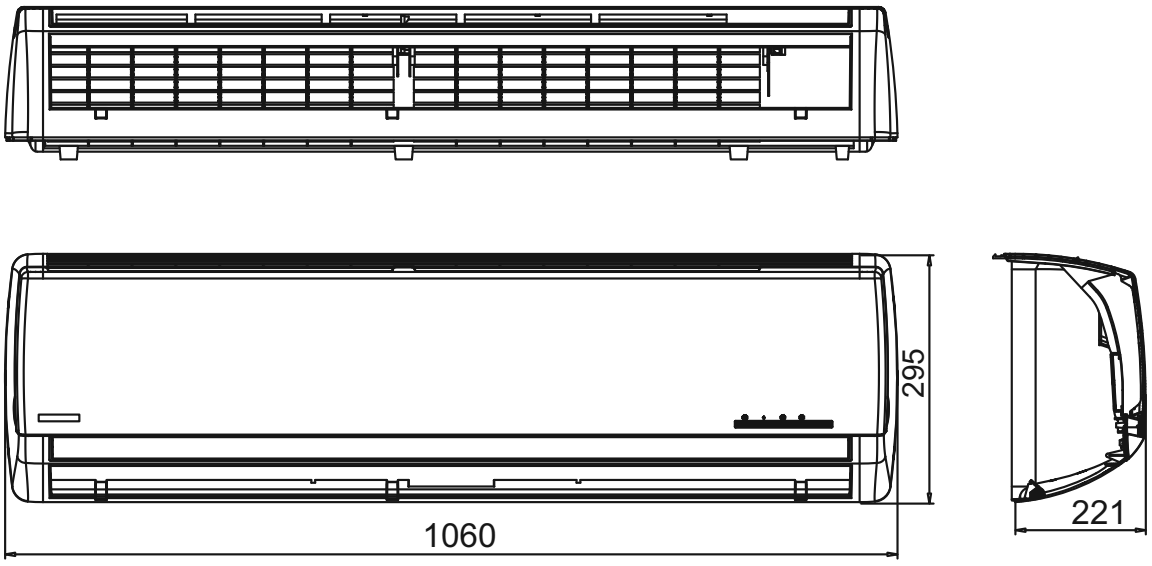
		Indoor	Outdoor
Cooling	Upper limit	32°C DB 23°C WB	46°C DB
	Lower limit	21°C DB 15°C WB	-10°C DB
Heating	Upper limit	27°C DB	24°C DB 18°C WB
	Lower limit	10°C DB	-15°C DB -16°C WB
Voltage	1PH	198 – 264 V	
	3PH	N/A	

4. OUTLINE DIMENSIONS

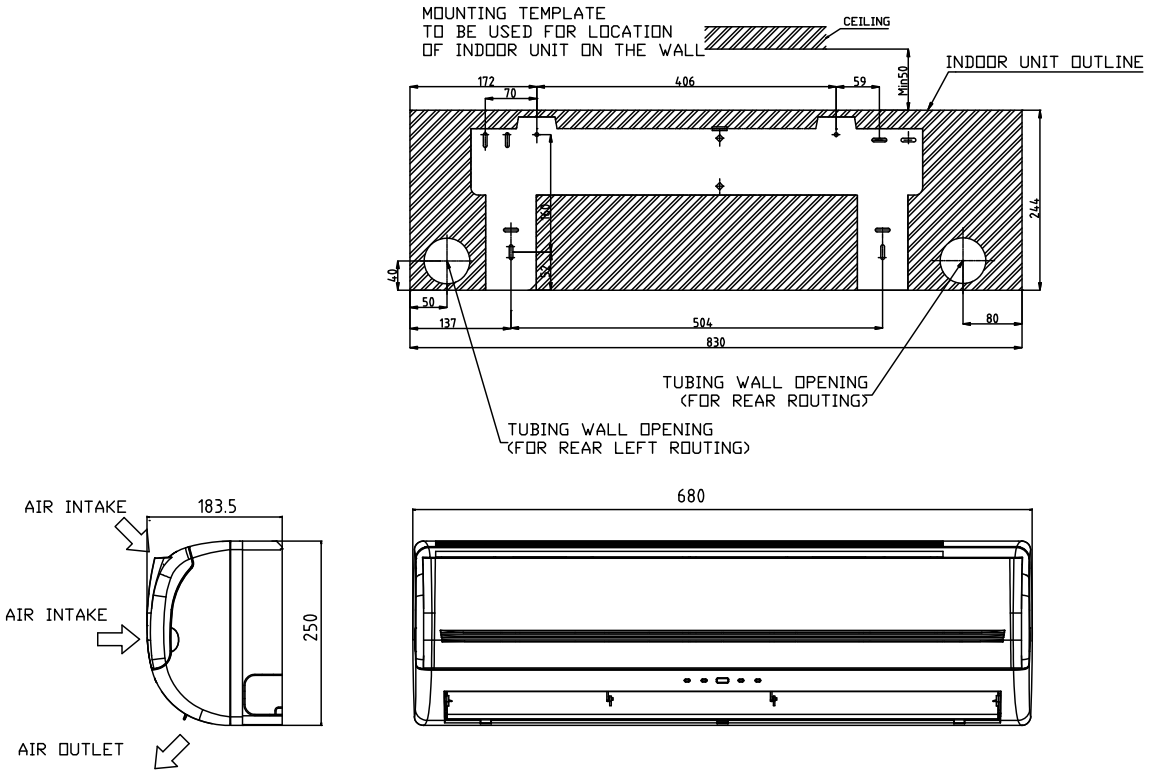
4.1 Indoor Unit: PNX009 / PNX012 DCI



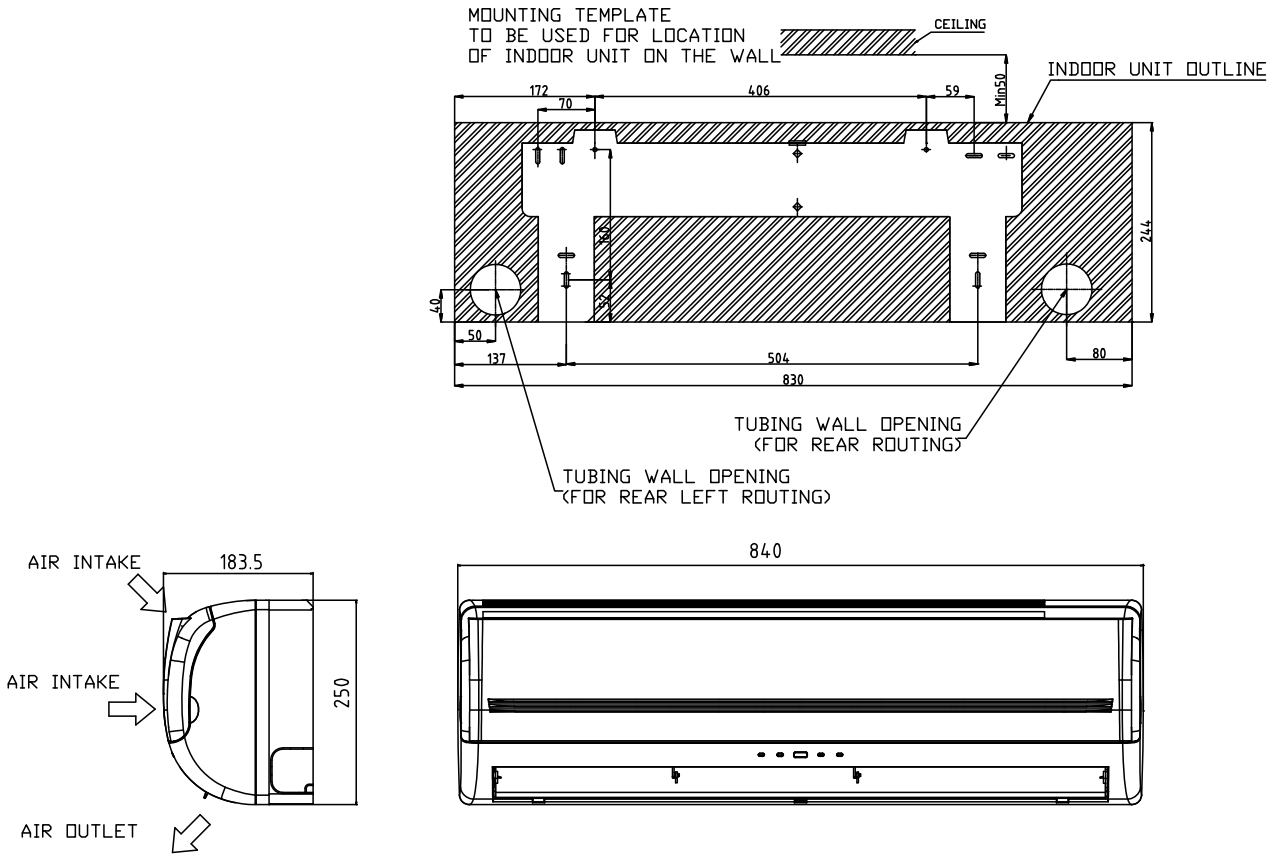
4.2 Indoor Unit: PNX018 / PNX021 / PNX024 DCI



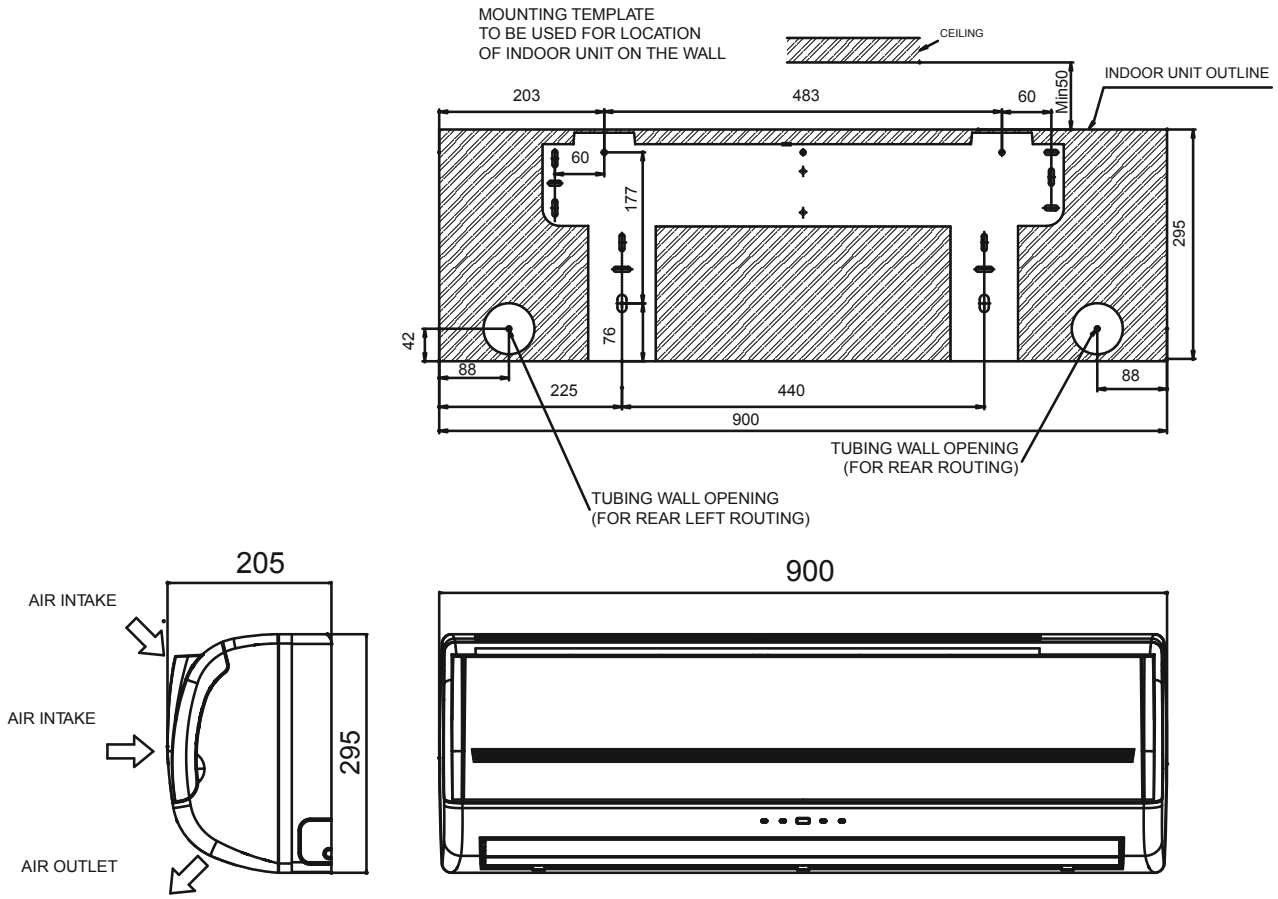
4.3 Indoor Units: HFD007 / HFD009 DCI



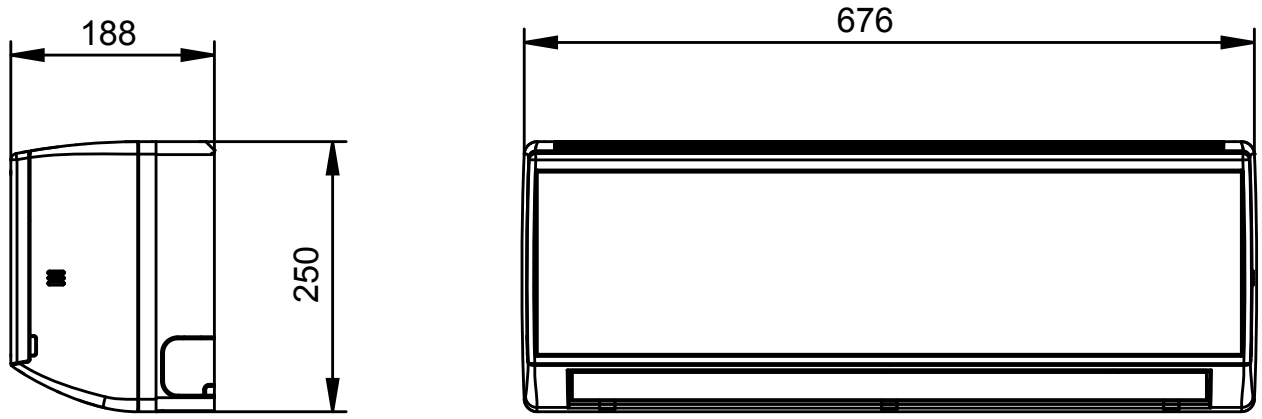
4.4 Indoor Unit: HFD012 DCI



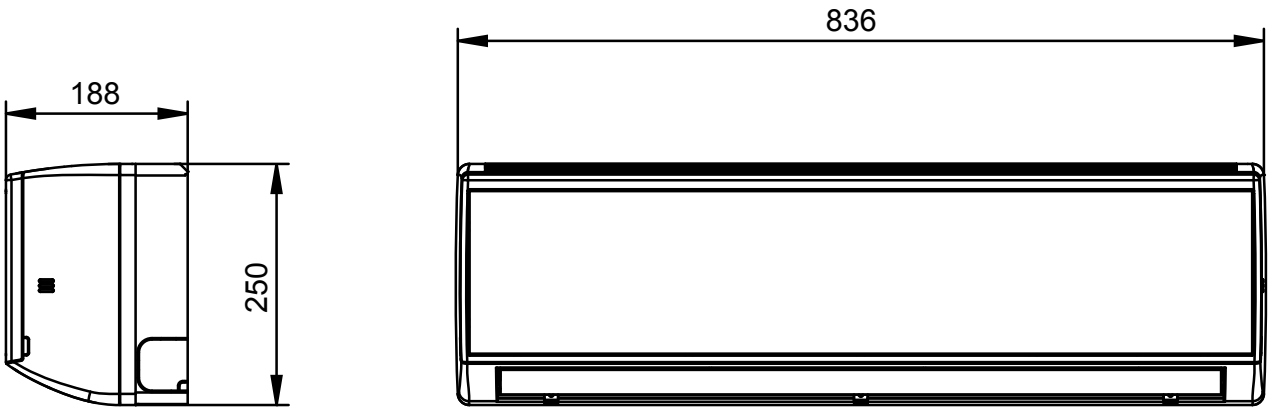
4.5 Indoor Unit: HFD018 DCI



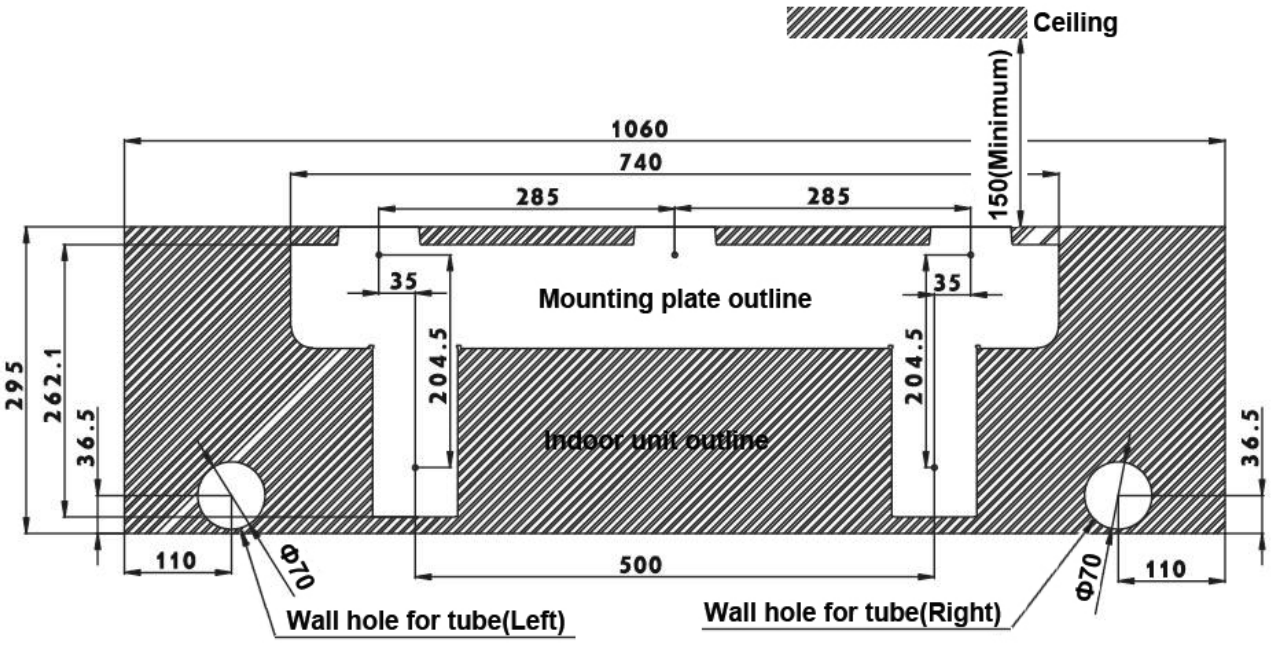
4.6 Indoor Unit: HAD007 / HAD009 DCI



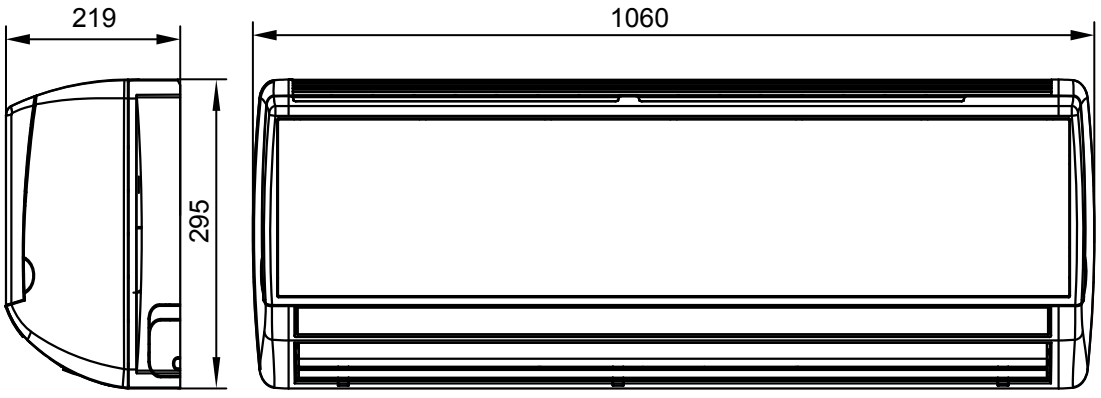
4.7 Indoor Units: HAD012 DCI



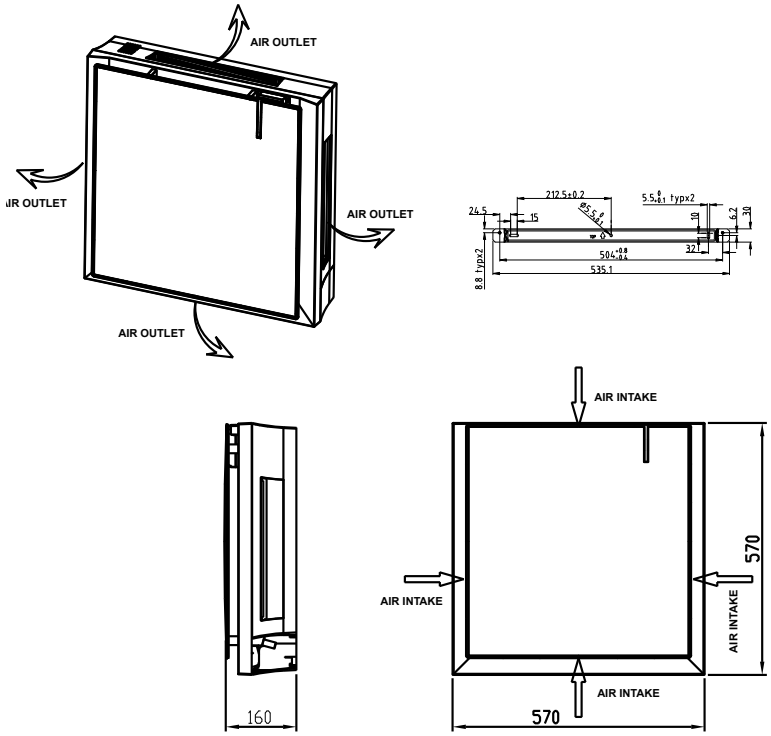
4.8 Indoor Units: HAD018 / HAD021 / HAD024 DCI



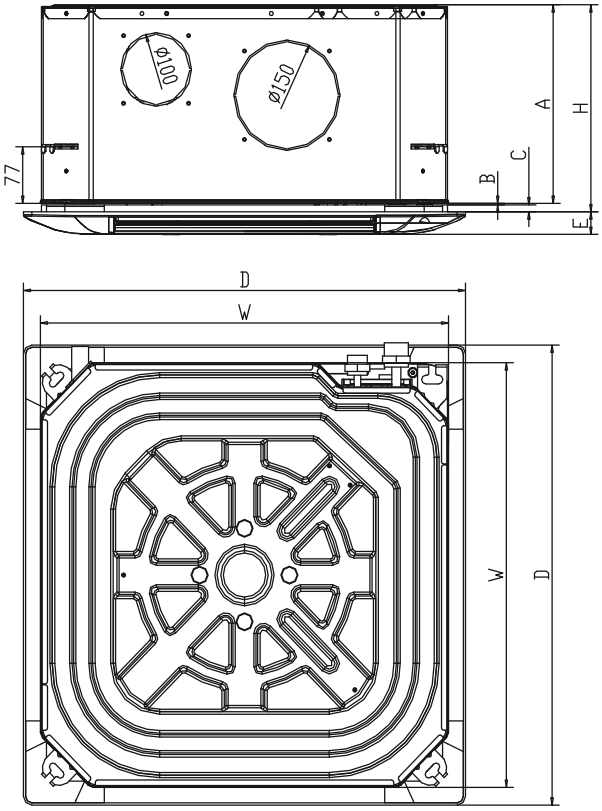
Installation guidelines sketch



4.9 Indoor Unit: XLF009 / XLF012 DCI

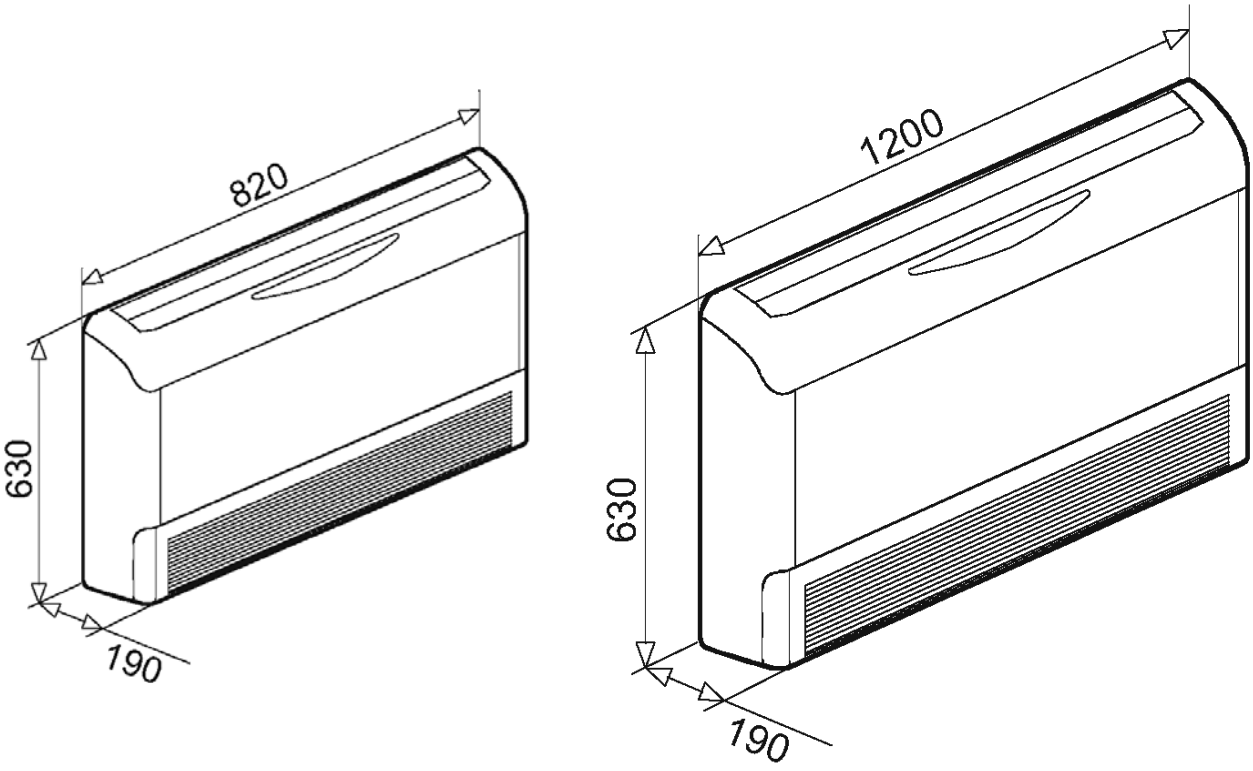


4.10 Indoor Unit: CK009 / CK012 / CK018 / CK021 / CK024 DCI

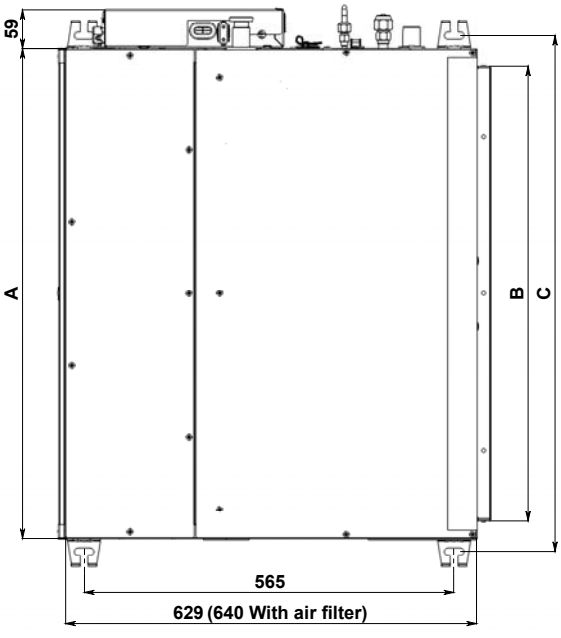


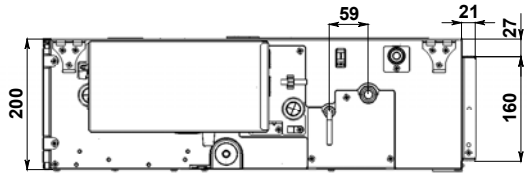
Unit Model	Main unit A	Insulation B	Front Step C	Front width D	Front height E	Effective Height H
009/012	*219*	*2*	*9*	*625/725*	*40*	*230*
018/021/024	*270*	*2*	*9*	*625/725*	*40*	*281*

4.11 Indoor Unit: SX009 / SX012 SX018 / SX021 / SX024 DCI



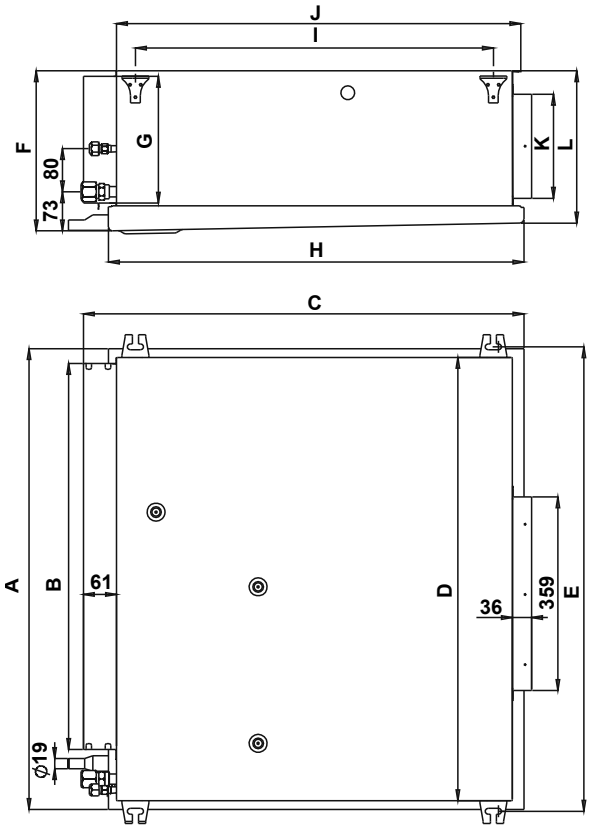
4.12 Indoor Unit: DLF009 / DLF012 / DLF018 / DLF021 / DLF024 DCI





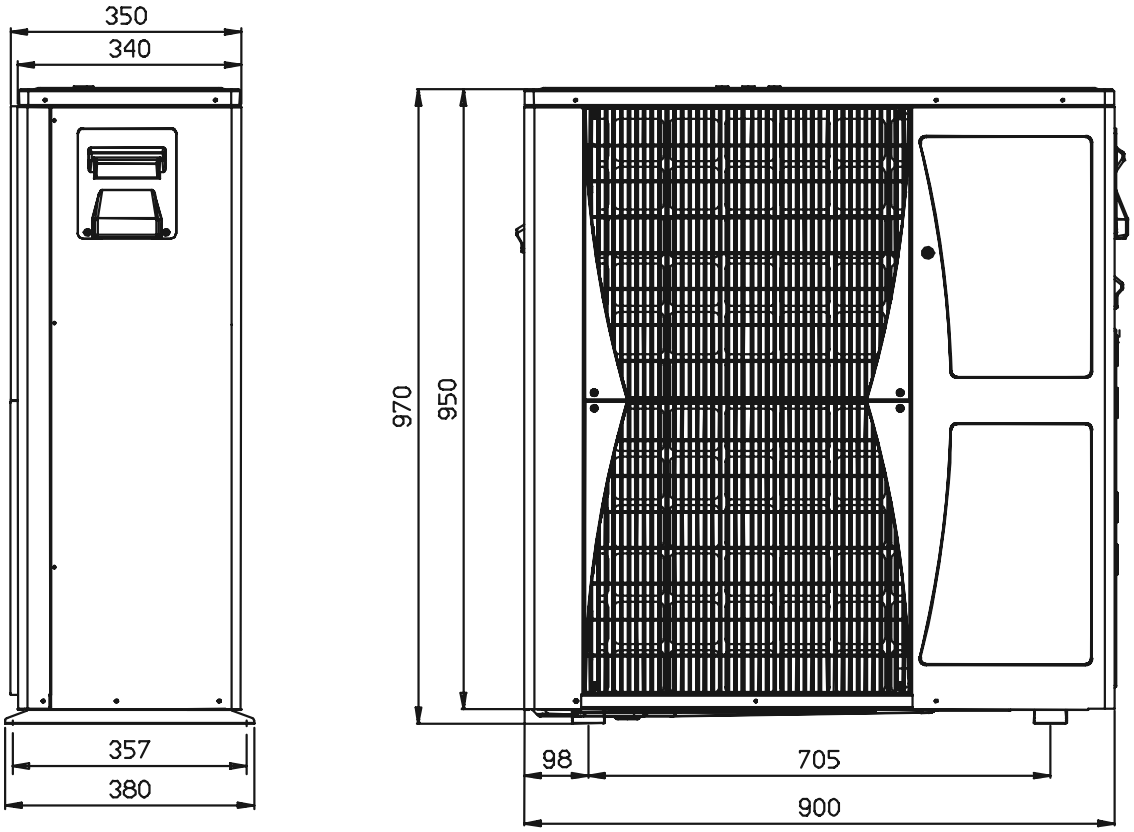
Nominal Capacity	A	B	C
2.5 -5.0 kW	750	696	790
6.0-7.2 kW	1050	996	1090

4.13 Indoor Unit: DLS018 / DLS021 / DLS024 DCI



Model	A	B	C	D	E	F	G	H	I	J	K	L
DLS018 / DLS021 / DLS024	*790*	*653*	*749*	*758*	*797*	*256*	*195*	*702*	*599*	*684*	*162*	*242*

4.14 Outdoor Units: Cinco 100 DCI



5. PERFORMANCE DATA

5.1 Outdoor Unit Cinco 100 DCI Combinations (Delta + LEX)

5.1.1 Cooling

Model	Cooling Capacity [KW]								Power Consumption [kW]			EER
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
7	2.2	-	-	-	-	2.2	1.40	3.0	0.68	0.40	0.92	3.24
9	2.5	-	-	-	-	2.5	1.50	3.5	0.76	0.40	1.01	3.29
12	3.5	-	-	-	-	3.5	1.50	4.2	1.03	0.40	1.29	3.40
18	-	-	-	-	5.0	5.0	2.20	6.0	1.44	0.42	1.63	3.47
21	-	-	-	-	6.0	6.0	2.20	6.7	1.93	0.40	2.13	3.11
24	-	-	-	-	7.0	7.0	2.50	8.0	2.58	0.41	2.71	2.71
7+7	2.3	2.3	-	-	-	4.5	2.0	6.0	1.13	0.60	1.60	3.98
7+9	2.1	2.7	-	-	-	4.8	2.1	6.3	1.27	0.60	1.77	3.78
7+12	2.1	3.7	-	-	-	5.8	2.1	6.7	1.71	0.60	2.20	3.41
7+18	2.1	-	-	-	5.3	7.4	2.3	7.6	2.45	0.56	2.71	3.01
7+21	2.0	-	-	-	6.0	8.0	2.4	8.1	2.75	0.56	3.05	2.90
7+24	1.8	-	-	-	6.3	8.1	2.5	8.5	2.81	0.56	3.20	2.88
9+9	2.6	2.6	-	-	-	5.1	2.1	6.6	1.36	0.58	1.95	3.76
9+12	2.6	3.5	-	-	-	6.1	2.2	7.0	2.01	0.54	2.54	3.05
9+18	2.6	-	-	-	5.1	7.7	2.4	7.9	2.58	0.56	3.20	2.97
9+21	2.4	-	-	-	5.6	8.0	2.5	8.4	2.75	0.56	3.28	2.90
9+24	2.2	-	-	-	5.9	8.1	2.6	8.8	2.81	0.56	3.32	2.88
12+12	3.6	3.6	-	-	-	7.2	2.3	7.5	2.40	0.54	2.55	2.98
12+18	3.2	-	-	-	4.8	8.0	2.5	8.4	2.76	0.56	3.22	2.89
12+21	2.9	-	-	-	5.1	8.1	2.6	8.8	2.73	0.56	3.18	2.96
12+24	2.7	-	-	-	5.5	8.2	2.6	9.2	2.78	0.56	3.18	2.94
18+18	-	-	-	4.5	4.5	9.0	2.6	11.0	3.00	0.59	3.16	3.00
18+21	-	-	-	4.2	4.9	9.1	2.7	11.0	3.08	0.57	3.12	2.96
18+24	-	-	-	4.0	5.3	9.3	2.8	11.0	3.17	0.55	3.20	2.92
21+21	-	-	-	4.6	4.6	9.3	2.8	11.0	3.17	0.55	3.20	2.92
21+24	-	-	-	4.4	5.0	9.4	2.9	11.0	3.25	0.55	3.20	2.88
24+24	-	-	-	4.8	4.8	9.5	3.0	11.0	3.33	0.55	3.40	2.85
7+7+7	1.9	1.9	1.9	-	-	5.6	2.50	8.5	1.86	0.69	2.41	3.02
7+7+9	1.8	1.8	2.3	-	-	5.9	2.6	8.6	1.97	0.67	2.51	2.98
7+7+12	1.8	1.8	3.0	-	-	6.5	2.7	8.8	2.31	0.69	2.97	2.83
7+7+18	1.5	1.5	-	-	3.8	6.7	2.9	9.2	2.32	0.70	2.92	2.89
7+7+21	1.4	1.4	-	-	4.1	6.8	3.0	9.4	2.37	0.68	2.88	2.87
7+7+24	1.3	1.3	-	-	4.3	6.8	3.1	9.6	2.39	0.68	2.88	2.85
7+9+9	1.7	2.2	2.2	-	-	6.1	2.6	8.8	2.10	0.69	2.94	2.91
7+9+12	1.7	2.1	2.8	-	-	6.6	2.7	9.0	2.35	0.69	2.97	2.82
7+9+18	1.4	1.8	-	-	3.6	6.7	2.9	9.4	2.37	0.70	2.92	2.83
7+9+21	1.3	1.7	-	-	3.9	6.8	3.0	9.6	2.39	0.68	2.88	2.85
7+9+24	1.2	1.5	-	-	4.1	6.8	3.1	9.8	2.39	0.68	2.88	2.85
7+12+12	1.5	2.6	2.6	-	-	6.7	2.8	9.2	2.35	0.69	2.92	2.86
7+12+18	1.3	2.2	-	-	3.3	6.7	3.0	9.6	2.32	0.70	2.89	2.89
7+12+21	1.2	2.0	-	-	3.6	6.8	3.1	9.8	2.35	0.68	2.86	2.89
7+12+24	1.2	2.0	-	-	4.0	7.2	3.2	10.0	2.51	0.68	3.00	2.88
7+18+18	1.1	-	-	3.0	3.0	7.1	3.2	10.0	2.40	0.68	3.05	2.94
7+18+21	1.1	-	-	2.8	3.3	7.2	3.3	10.2	2.50	0.66	3.02	2.89
7+18+24	1.1	-	-	2.8	3.7	7.7	3.4	10.4	2.65	0.66	3.05	2.89
7+21+21	1.1	-	-	3.3	3.3	7.7	3.4	10.4	2.65	0.66	3.05	2.89
7+21+24	1.0	-	-	3.1	3.6	7.7	3.5	10.5	2.68	0.60	3.21	2.89
9+9+9	2.5	2.5	2.5	-	-	7.5	2.7	8.9	2.36	0.69	3.01	3.18
9+9+12	2.4	2.4	3.1	-	-	7.8	2.8	9.1	2.41	0.69	2.97	3.25
9+9+18	2.1	2.1	-	-	4.3	8.5	3.0	9.5	2.51	0.70	2.92	3.38
9+9+21	2.0	2.0	-	-	4.8	8.8	3.1	9.7	2.61	0.68	2.88	3.38
9+9+24	2.0	2.0	-	-	5.2	9.2	3.2	9.9	2.71	0.68	3.05	3.38

Model	Cooling Capacity [KW]								Power Consumption [kW]			EER
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
9+12+12	2.2	3.0	3.0	-	-	8.2	2.9	9.3	2.46	0.69	2.92	3.31
9+12+18	2.0	2.7	-	-	4.1	8.8	3.1	9.7	2.61	0.70	2.89	3.38
9+12+21	2.0	2.6	-	-	4.6	9.2	3.2	9.9	2.71	0.68	3.00	3.38
9+12+24	1.9	2.5	-	-	5.1	9.5	3.3	10.1	2.81	0.68	3.02	3.38
9+18+18	1.9	-	-	3.8	3.8	9.5	3.3	10.1	2.81	0.66	3.02	3.38
9+18+21	1.8	-	-	3.6	4.2	9.5	3.4	10.3	2.81	0.66	3.02	3.38
9+18+24	1.7	-	-	3.4	4.5	9.5	3.5	10.5	2.81	0.66	3.05	3.38
9+21+21	1.7	-	-	3.9	3.9	9.5	3.5	10.5	2.81	0.66	3.05	3.38
9+21+24	1.6	-	-	3.7	4.2	9.5	3.6	10.5	2.81	0.66	3.20	3.38
12+12+12	2.8	2.8	2.8	-	-	8.5	3.0	9.5	2.51	0.72	2.91	3.38
12+12+18	2.6	2.6	-	-	3.9	9.2	3.2	9.9	2.71	0.70	3.00	3.38
12+12+21	2.5	2.5	-	-	4.4	9.5	3.3	10.1	2.81	0.68	3.02	3.38
12+12+24	2.4	2.4	-	-	4.8	9.5	3.4	10.3	2.81	0.68	3.05	3.38
12+18+18	2.4	-	-	3.6	3.6	9.5	3.4	10.3	2.81	0.68	3.02	3.38
12+18+21	2.2	-	-	3.4	3.9	9.5	3.5	10.5	2.81	0.66	3.05	3.38
7+7+7+7	1.7	1.7	1.7	1.7	-	6.9	3.00	9.0	2.18	0.81	2.67	3.15
7+7+7+9	1.6	1.6	1.6	2.1	-	7.0	3.1	9.2	2.19	0.81	2.67	3.17
7+7+7+12	1.5	1.5	1.5	2.6	-	7.0	3.3	9.5	2.21	0.81	2.65	3.19
7+7+7+18	1.3	1.3	1.3	3.2	-	7.0	3.6	10.1	2.15	0.79	2.62	3.27
7+7+7+21	1.2	1.2	1.2	3.7	-	7.5	3.7	10.4	2.30	0.77	2.75	3.25
7+7+7+24	1.2	1.2	1.2	4.1	-	7.7	3.9	10.7	2.36	0.77	2.73	3.24
7+7+9+9	1.5	1.5	2.0	2.0	-	7.0	3.2	9.4	2.19	0.81	2.67	3.17
7+7+9+12	1.4	1.4	1.8	2.4	-	7.0	3.4	9.7	2.21	0.81	2.65	3.19
7+7+9+18	1.2	1.2	1.6	3.2	-	7.2	3.7	10.3	2.20	0.79	2.70	3.28
7+7+9+21	1.2	1.2	1.5	3.6	-	7.5	3.8	10.6	2.30	0.77	2.71	3.25
7+7+9+24	1.1	1.1	1.5	3.9	-	7.7	4.0	10.9	2.35	0.77	2.75	3.26
7+7+12+12	1.3	1.3	2.2	2.2	-	7.0	3.5	10.0	2.21	0.81	2.62	3.19
7+7+12+18	1.2	1.2	2.0	3.1	-	7.5	3.8	10.6	2.30	0.79	2.71	3.25
7+7+12+21	1.1	1.1	2.0	3.4	-	7.7	4.0	10.9	2.35	0.77	2.75	3.26
7+7+18+18	1.1	1.1	-	2.9	2.9	7.9	4.1	11.0	2.45	0.77	2.90	3.23
7+9+9+9	1.4	1.8	1.8	1.8	-	7.0	3.3	9.6	2.14	0.81	2.67	3.25
7+9+9+12	1.3	1.7	1.7	2.3	-	7.0	3.5	9.9	2.21	0.81	2.65	3.19
7+9+9+18	1.2	1.5	1.5	3.1	-	7.3	3.8	10.5	2.23	0.79	2.71	3.28
7+9+9+21	1.1	1.5	1.5	3.4	-	7.5	3.9	10.8	2.30	0.77	2.75	3.25
7+9+9+24	1.1	1.5	1.5	3.9	-	7.9	4.1	11.0	2.43	0.77	2.89	3.26
7+9+12+12	1.3	1.6	2.2	2.2	-	7.2	3.6	10.2	2.20	0.81	2.70	3.28
7+9+12+18	1.1	1.5	2.0	2.9	-	7.5	3.9	10.8	2.30	0.81	2.75	3.25
7+9+12+21	1.1	1.5	1.9	3.4	-	7.9	4.1	11.0	2.45	0.77	2.89	3.23
7+9+18+18	1.1	1.4	-	2.7	2.7	7.9	4.2	11.0	2.45	0.77	2.89	3.23
7+9+18+21	1.0	1.3	-	3.0	2.6	7.9	4.4	11.0	2.43	0.77	3.03	3.26
7+12+12+12	1.2	2.1	2.1	2.1	-	7.5	3.8	10.5	2.30	0.81	2.71	3.25
7+12+12+18	1.1	1.9	1.9	2.9	-	7.9	4.1	11.0	2.45	0.79	2.75	3.23
7+12+12+21	1.1	1.8	1.8	3.2	-	7.9	4.2	11.0	2.43	0.77	2.89	3.26
9+9+9+9	2.2	2.2	2.2	2.2	-	8.8	3.4	9.8	2.33	0.81	2.67	3.77
9+9+9+12	2.1	2.1	2.1	2.8	-	9.1	3.6	10.1	2.38	0.81	2.65	3.83
9+9+9+18	1.9	1.9	1.9	3.9	-	9.7	3.9	10.7	2.46	0.79	2.71	3.94
9+9+9+21	1.9	1.9	1.9	4.4	-	10.0	4.0	11.0	2.50	0.77	2.75	4.00
9+9+9+24	1.8	1.8	1.8	4.7	-	10.0	4.2	11.0	2.50	0.77	2.89	4.00
9+9+12+12	2.0	2.0	2.7	2.7	-	9.4	3.7	10.4	2.42	0.81	2.71	3.89
9+9+12+18	1.9	1.9	2.5	3.8	-	10.0	4.0	11.0	2.50	0.79	2.75	4.00
9+9+12+21	2.0	2.0	2.7	2.7	-	9.4	3.7	10.4	2.42	0.77	2.89	3.89
9+9+18+18	1.7	1.7	3.3	3.3	-	10.0	4.3	11.0	2.50	0.77	2.89	4.00
9+12+12+12	1.9	2.6	2.6	2.6	-	9.7	3.9	10.7	2.46	0.81	2.61	3.94
9+12+12+18	1.8	2.4	2.4	3.5	-	10.0	4.2	11.0	2.50	0.79	2.89	4.00
9+12+12+21	1.7	2.2	2.2	3.9	-	10.0	4.3	11.0	2.50	0.79	2.89	4.00
12+12+12+12	2.5	2.5	2.5	2.5	-	10.0	4.0	11.0	2.50	0.81	2.92	4.00
7+7+7+7+7	1.9	1.9	1.9	1.9	1.9	9.5	4.00	10.2	3.11	0.78	3.50	3.05
7+7+7+7+9	1.8	1.8	1.8	1.8	2.3	9.6	4.1	10.4	3.13	0.78	3.50	3.07

Model	Cooling Capacity [KW]								Power Consumption [kW]			EER
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
7+7+7+7+12	1.7	1.7	1.7	1.7	2.9	9.8	4.2	10.6	3.15	0.78	3.50	3.10
7+7+7+7+18	1.5	1.5	1.5	1.5	3.9	10.0	4.3	11.0	3.17	0.79	3.49	3.15
7+7+7+7+21	1.4	1.4	1.4	1.4	4.3	10.0	4.4	11.0	3.17	0.80	3.48	3.15
7+7+7+9+9	1.7	1.7	1.7	2.2	2.2	9.7	4.1	10.5	3.14	0.78	3.50	3.09
7+7+7+9+12	1.6	1.6	1.6	2.1	2.8	9.9	4.2	10.8	3.16	0.78	3.50	3.12
7+7+7+9+18	1.5	1.5	1.5	1.9	3.8	10.0	4.4	11.0	3.17	0.79	3.49	3.15
7+7+7+12+12	1.6	1.6	1.6	2.1	2.8	9.9	4.2	10.8	3.16	0.78	3.50	3.12
7+7+9+9+9	1.7	1.7	2.2	2.2	2.2	9.8	4.2	10.7	3.15	0.78	3.50	3.11
7+7+9+9+12	1.6	1.6	2.0	2.0	2.7	10.0	4.3	10.9	3.17	0.78	3.50	3.14
7+7+9+9+18	1.4	1.4	1.8	1.8	3.6	10.0	4.5	11.0	3.17	0.79	3.49	3.15
7+7+9+12+12	1.5	1.5	1.9	2.6	2.6	10.0	4.4	11.0	3.17	0.78	3.50	3.15
7+9+9+9+9	1.6	2.1	2.1	2.1	2.1	9.9	4.3	10.8	3.16	0.78	3.50	3.13
7+9+9+9+12	1.5	2.0	2.0	2.0	2.6	10.0	4.3	11.0	3.17	0.78	3.50	3.15
7+9+9+9+18	1.3	1.7	1.7	1.7	3.5	10.0	4.5	11.0	3.17	0.79	3.49	3.15
7+9+9+12+12	1.3	1.7	1.7	1.7	3.5	10.0	4.5	11.0	3.17	0.78	3.50	3.15
9+9+9+9+9	2.0	2.0	2.0	2.0	2.0	10.0	4.3	11.0	3.17	0.78	3.50	3.15
9+9+9+9+12	1.9	1.9	1.9	1.9	2.6	10.3	4.4	11.0	3.08	0.78	3.50	3.33
9+9+9+9+18	1.8	1.8	1.8	1.8	3.5	10.5	4.6	11.0	3.00	0.79	3.49	3.50
9+9+9+12+12	1.9	1.9	1.9	2.5	2.5	10.5	4.50	11.0	3.00	0.78	3.50	3.50

Nominal Indoor Units Combination

Notes:

(1) Units 22 – Delta (HFD/HAD). Units 25,35,50,60,70 – LEX (PNX/WNG).

(2) Rating conditions in accordance with ISO 5151.

(3) Power Input/EER/COP are for complete system.

(4) Running Current is measured in nominal conditions at 230V.

5.1.2 Heating

Model	Heating Capacity [KW]								Power Consumption [kW]			COP
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
7	2.8	-	-	-	-	2.8	0.95	4.0	0.60	0.30	0.80	4.67
9	3.4	-	-	-	-	3.4	0.95	5.2	0.69	0.40	0.86	4.96
12	4.3	-	-	-	-	4.3	1.11	7.5	0.95	0.39	1.21	4.54
18	-	-	-	-	6.0	6.0	1.50	7.6	1.50	0.46	1.87	4.01
21	-	-	-	-	6.5	6.5	1.80	7.9	1.85	0.40	2.13	3.51
24	-	-	-	-	7.6	7.6	2.00	8.8	2.42	0.41	2.71	3.14
7+7	2.6	2.6	-	-	-	5.3	2.0	7.0	1.13	0.60	1.60	4.66
7+9	2.5	3.2	-	-	-	5.6	2.1	7.3	1.27	0.60	1.77	4.43
7+12	2.5	4.3	-	-	-	6.8	2.1	7.7	1.71	0.60	2.20	3.99
7+18	2.4	-	-	-	6.2	8.6	2.3	8.6	2.45	0.56	2.71	3.52
7+21	2.3	-	-	-	7.0	9.3	2.4	9.1	2.75	0.56	3.05	3.40
7+24	2.1	-	-	-	7.3	9.5	2.5	9.5	2.81	0.56	3.20	3.37
9+9	3.0	3.0	-	-	-	6.0	2.1	7.6	1.36	0.58	1.95	4.40
9+12	3.1	4.1	-	-	-	7.2	2.2	8.0	2.01	0.54	2.54	3.58
9+18	3.0	-	-	-	6.0	9.0	2.4	8.9	2.58	0.56	3.20	3.48
9+21	2.8	-	-	-	6.5	9.3	2.5	9.4	2.75	0.56	3.28	3.40
9+24	2.6	-	-	-	6.9	9.5	2.6	9.8	2.81	0.56	3.32	3.37
12+12	4.2	4.2	-	-	-	8.4	2.3	8.5	2.40	0.54	2.55	3.49
12+18	3.7	-	-	-	5.6	9.3	2.5	9.4	2.76	0.56	3.22	3.38
12+21	3.4	-	-	-	6.0	9.5	2.6	9.8	2.73	0.56	3.18	3.47
12+24	3.2	-	-	-	6.4	9.6	2.6	10.2	2.78	0.56	3.18	3.45
18+18	-	-	-	5.3	5.3	10.5	2.6	11.5	2.94	0.59	3.16	3.58
18+21	-	-	-	4.9	5.7	10.6	2.7	11.0	2.98	0.57	3.12	3.56
18+24	-	-	-	4.6	6.1	10.7	2.8	11.0	3.02	0.55	3.20	3.53
21+21	-	-	-	5.3	5.3	10.7	2.8	11.0	3.02	0.55	3.20	3.53
21+24	-	-	-	5.0	5.7	10.7	2.9	11.0	3.05	0.55	3.20	3.51
24+24	-	-	-	5.4	5.4	10.8	3.0	12.0	3.09	0.55	3.40	3.49
7+7+7	2.3	2.3	2.3	-	-	6.9	2.5	8.5	1.86	0.69	2.41	3.69
7+7+9	2.2	2.2	2.8	-	-	7.2	2.6	8.7	1.97	0.67	2.51	3.64
7+7+12	2.2	2.2	3.7	-	-	8.0	2.7	9.1	2.31	0.69	2.97	3.47
7+7+18	1.8	1.8	-	-	4.6	8.2	2.9	9.8	2.32	0.70	2.92	3.54
7+7+21	1.7	1.7	-	-	5.0	8.3	3.0	10.1	2.37	0.68	2.88	3.51
7+7+24	1.5	1.5	-	-	5.3	8.3	3.1	10.5	2.39	0.68	2.88	3.48
7+9+9	2.1	2.7	2.7	-	-	7.5	2.6	9.0	2.10	0.69	2.94	3.57
7+9+12	2.0	2.6	3.5	-	-	8.1	2.7	9.3	2.35	0.69	2.97	3.45
7+9+18	1.7	2.2	-	-	4.3	8.2	2.9	10.0	2.37	0.70	2.92	3.47
7+9+21	1.6	2.0	-	-	4.7	8.3	3.0	10.4	2.39	0.68	2.88	3.48
7+9+24	1.5	1.9	-	-	5.0	8.3	3.1	10.7	2.39	0.68	2.88	3.48
7+12+12	1.9	3.2	3.2	-	-	8.2	2.8	9.7	2.35	0.69	2.92	3.50
7+12+18	1.6	2.7	-	-	4.0	8.2	3.0	10.4	2.32	0.70	2.89	3.54
7+12+21	1.5	2.5	-	-	4.4	8.3	3.1	10.7	2.35	0.68	2.86	3.54
7+12+24	1.4	2.5	-	-	4.9	8.8	3.2	11.1	2.51	0.68	3.00	3.52
7+18+18	1.4	-	-	3.6	3.6	8.6	3.2	11.1	2.40	0.68	3.05	3.60
7+18+21	1.3	-	-	3.5	4.0	8.8	3.3	11.4	2.50	0.66	3.02	3.54
7+18+24	1.3	-	-	3.4	4.6	9.4	3.4	11.8	2.65	0.66	3.05	3.53
7+21+21	1.3	-	-	4.0	4.0	9.4	3.4	11.8	2.65	0.66	3.05	3.53
7+21+24	1.3	-	-	3.8	4.4	9.5	3.5	12.0	2.68	0.60	3.21	3.53
9+9+9	3.3	3.3	3.3	-	-	10.0	2.7	11.0	2.44	0.69	3.01	4.10
9+9+12	3.0	3.0	4.1	-	-	10.1	2.8	11.1	2.53	0.69	2.97	4.00
9+9+18	2.6	2.6	-	-	5.2	10.4	3.0	11.4	2.60	0.70	2.92	4.00
9+9+21	2.4	2.4	-	-	5.6	10.4	3.1	11.5	2.62	0.68	2.88	3.97
9+9+24	2.2	2.2	-	-	5.9	10.4	3.2	11.6	2.64	0.68	3.05	3.93
9+12+12	2.8	3.7	3.7	-	-	10.3	2.9	11.3	2.57	0.69	2.92	4.00
9+12+18	2.4	3.2	-	-	4.8	10.4	3.1	11.5	2.62	0.70	2.89	3.97
9+12+21	2.2	3.0	-	-	5.2	10.4	3.2	11.6	2.64	0.68	3.00	3.93
9+12+24	2.1	2.8	-	-	5.5	10.4	3.3	11.8	2.67	0.68	3.02	3.90
9+18+18	2.1	-	-	4.2	4.2	10.4	3.3	11.8	2.67	0.66	3.02	3.90

Model	Heating Capacity [KW]								Power Consumption [kW]			COP
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
9+18+21	2.0	-	-	3.9	4.6	10.4	3.4	11.9	2.69	0.66	3.02	3.87
9+18+24	1.8	-	-	3.7	4.9	10.4	3.5	12.0	2.71	0.66	3.05	3.83
9+21+21	1.8	-	-	4.3	4.3	10.4	3.5	12.0	2.71	0.66	3.05	3.83
9+21+24	1.7	-	-	4.0	4.6	10.4	3.6	12.0	2.74	0.66	3.20	3.80
12+12+12	3.5	3.5	3.5	-	-	10.4	3.0	11.4	2.60	0.72	2.91	4.00
12+12+18	3.0	3.0	-	-	4.6	10.7	3.2	11.6	2.71	0.70	3.00	3.93
12+12+21	2.9	2.9	-	-	5.0	10.8	3.3	11.8	2.77	0.68	3.02	3.90
12+12+24	2.7	2.7	-	-	5.5	10.9	3.4	11.9	2.83	0.68	3.05	3.87
12+18+18	2.7	-	-	4.1	4.1	10.9	3.4	11.9	2.83	0.68	3.02	3.87
12+18+21	2.6	-	-	3.9	4.6	11.1	3.5	12.0	2.89	0.66	3.05	3.83
7+7+7+7	2.0	2.0	2.0	2.0	-	7.8	3.0	9.0	2.18	0.81	2.67	3.58
7+7+7+9	1.8	1.8	1.8	2.4	-	7.9	3.1	9.3	2.17	0.81	2.67	3.64
7+7+7+12	1.7	1.7	1.7	2.9	-	8.0	3.3	9.6	2.16	0.81	2.65	3.70
7+7+7+18	1.4	1.4	1.4	3.7	-	8.0	3.6	10.4	2.39	0.79	2.62	3.35
7+7+7+21	1.4	1.4	1.4	4.3	-	8.5	3.7	10.8	2.38	0.77	2.75	3.57
7+7+7+24	1.4	1.4	1.4	4.6	-	8.7	3.9	11.1	2.38	0.77	2.73	3.66
7+7+9+9	1.7	1.7	2.2	2.2	-	7.9	3.2	9.5	2.16	0.81	2.67	3.66
7+7+9+12	1.6	1.6	2.1	2.7	-	8.0	3.4	9.9	2.15	0.81	2.65	3.72
7+7+9+18	1.4	1.4	1.8	3.6	-	8.2	3.7	10.6	2.38	0.79	2.70	3.45
7+7+9+21	1.4	1.4	1.7	4.1	-	8.5	3.8	11.0	2.37	0.77	2.71	3.59
7+7+9+24	1.3	1.3	1.7	4.4	-	8.7	4.0	11.4	2.37	0.77	2.75	3.67
7+7+12+12	1.5	1.5	2.5	2.5	-	8.0	3.5	10.3	2.15	0.81	2.62	3.72
7+7+12+18	1.4	1.4	2.3	3.5	-	8.5	3.8	11.0	2.37	0.79	2.71	3.59
7+7+12+21	1.3	1.3	2.2	3.9	-	8.7	4.0	11.4	2.36	0.77	2.75	3.69
7+7+18+18	1.3	1.3	-	3.2	3.2	9.0	4.1	11.5	2.27	0.77	2.90	3.96
7+9+9+9	1.6	2.1	2.1	2.1	-	7.9	3.3	9.8	2.16	0.81	2.67	3.66
7+9+9+12	1.5	1.9	1.9	2.6	-	8.0	3.5	10.1	2.15	0.81	2.65	3.72
7+9+9+18	1.4	1.7	1.7	3.5	-	8.3	3.8	10.9	2.38	0.79	2.71	3.49
7+9+9+21	1.3	1.7	1.7	3.9	-	8.5	3.9	11.3	2.36	0.77	2.75	3.60
7+9+9+24	1.3	1.7	1.7	4.4	-	9.0	4.1	11.5	2.36	0.77	2.89	3.81
7+9+12+12	1.4	1.8	2.5	2.5	-	8.2	3.6	10.5	2.52	0.81	2.70	3.25
7+9+12+18	1.3	1.7	2.2	3.3	-	8.5	3.9	11.3	2.35	0.81	2.75	3.62
7+9+12+21	1.3	1.7	2.2	3.9	-	9.0	4.1	11.5	2.34	0.77	2.89	3.85
7+9+18+18	1.2	1.6	-	3.1	3.1	9.0	4.2	11.5	2.26	0.77	2.89	3.98
7+9+18+21	1.1	1.5	-	3.4	2.9	9.0	4.4	11.5	2.25	0.77	3.03	4.00
7+12+12+12	1.4	2.4	2.4	2.4	-	8.5	3.8	10.9	2.55	0.81	2.71	3.33
7+12+12+18	1.3	2.2	2.2	3.3	-	9.0	4.1	11.5	2.35	0.79	2.75	3.83
7+12+12+21	1.2	2.1	2.1	3.6	-	9.0	4.2	11.5	2.34	0.77	2.89	3.85
9+9+9+9	2.5	2.5	2.5	2.5	-	10.0	3.4	10.4	2.08	0.81	2.67	4.80
9+9+9+12	2.4	2.4	2.4	3.2	-	10.3	3.6	10.4	2.23	0.81	2.65	4.60
9+9+9+18	2.2	2.2	2.2	4.3	-	10.8	3.9	11.1	2.56	0.79	2.71	4.20
9+9+9+21	2.1	2.1	2.1	4.8	-	11.0	4.0	11.5	2.75	0.77	2.75	4.00
9+9+9+24	1.9	1.9	1.9	5.2	-	11.0	4.2	11.5	2.89	0.77	2.89	3.80
9+9+12+12	2.3	2.3	3.0	3.0	-	10.5	3.7	10.8	2.39	0.81	2.71	4.40
9+9+12+18	2.1	2.1	2.8	4.1	-	11.0	4.0	11.5	2.75	0.79	2.75	4.00
9+9+12+21	2.3	2.3	3.0	3.0	-	10.5	3.7	10.8	2.39	0.77	2.89	4.40
9+9+18+18	1.8	1.8	3.7	3.7	-	11.0	4.3	11.5	3.06	0.77	2.89	3.60
9+12+12+12	2.2	2.9	2.9	2.9	-	10.8	3.9	11.1	2.56	0.81	2.61	4.20
9+12+12+18	1.9	2.6	2.6	3.9	-	11.0	4.2	11.5	2.89	0.79	2.89	3.80
9+12+12+21	1.8	2.4	2.4	4.3	-	11.0	4.3	11.5	3.06	0.79	2.89	3.60
12+12+12+12	2.8	2.8	2.8	2.8	-	11.0	4.0	11.5	2.75	0.81	2.92	4.00
7+7+7+7+7	2.2	2.2	2.2	2.2	2.2	11.0	4.0	11.2	2.89	0.78	3.50	3.80
7+7+7+7+9	2.1	2.1	2.1	2.1	2.7	11.2	4.1	11.5	2.89	0.78	3.50	3.88
7+7+7+7+12	2.0	2.0	2.0	2.0	3.5	11.5	4.2	11.9	2.88	0.78	3.50	4.00
7+7+7+7+18	1.8	1.8	1.8	1.8	4.7	12.0	4.3	12.5	2.86	0.79	3.49	4.20
7+7+7+7+21	1.7	1.7	1.7	1.7	5.1	12.0	4.4	12.5	2.86	0.80	3.48	4.20
7+7+7+9+9	2.0	2.0	2.0	2.6	2.6	11.4	4.1	11.7	2.88	0.78	3.50	3.96
7+7+7+9+12	2.0	2.0	2.0	2.5	3.3	11.7	4.2	12.1	2.87	0.78	3.50	4.08

Model	Heating Capacity [KW]								Power Consumption [kW]			COP
	A	B	C	D	E	Nom.	Min.	Max.	Nom.	Min.	Max.	Nom.
7+7+7+9+18	1.8	1.8	1.8	2.3	4.5	12.0	4.4	12.5	2.86	0.79	3.49	4.20
7+7+7+12+12	2.0	2.0	2.0	2.5	3.3	11.7	4.2	12.1	2.87	0.78	3.50	4.08
7+7+9+9+9	2.0	2.0	2.5	2.5	2.5	11.6	4.2	12.0	2.87	0.78	3.50	4.04
7+7+9+9+12	1.9	1.9	2.4	2.4	3.2	11.9	4.3	12.4	2.86	0.78	3.50	4.16
7+7+9+9+18	1.7	1.7	2.2	2.2	4.3	12.0	4.5	12.5	2.86	0.79	3.49	4.20
7+7+9+12+12	1.8	1.8	2.3	3.1	3.1	12.0	4.4	12.5	2.86	0.78	3.50	4.20
7+9+9+9+9	1.9	2.5	2.5	2.5	2.5	11.8	4.3	12.2	2.86	0.78	3.50	4.12
7+9+9+9+12	1.8	2.3	2.3	2.3	3.1	12.0	4.3	12.5	2.86	0.78	3.50	4.20
7+9+9+9+18	1.6	2.1	2.1	2.1	4.2	12.0	4.5	12.5	2.86	0.79	3.49	4.20
7+9+9+12+12	1.6	2.1	2.1	2.1	4.2	12.0	4.5	12.5	2.86	0.78	3.50	4.20
9+9+9+9+9	2.4	2.4	2.4	2.4	2.4	12.0	4.3	12.5	2.86	0.78	3.50	4.20
9+9+9+9+12	2.3	2.3	2.3	2.3	3.0	12.1	4.4	12.5	2.83	0.78	3.50	4.28
9+9+9+9+18	2.0	2.0	2.0	2.0	4.1	12.2	4.6	12.5	2.80	0.79	3.49	4.35
9+9+9+12+12	2.2	2.2	2.2	2.9	2.9	12.2	4.5	12.5	2.80	0.78	3.50	4.35

Nominal Indoor Units Combination

Notes:

(1) Units 22 – Delta (HFD/HAD). Units 25,35,50,60,70 – LEX (PNX/WNG).

(2) Rating conditions in accordance with ISO 5151.

(3) Power Input/EER/COP are for complete system.

(4) Running Current is measured in nominal conditions at 230V.

5.2 LEX 25 DCI

5.2.1 Cooling Capacity Factors - Unit A, B, C, D or E

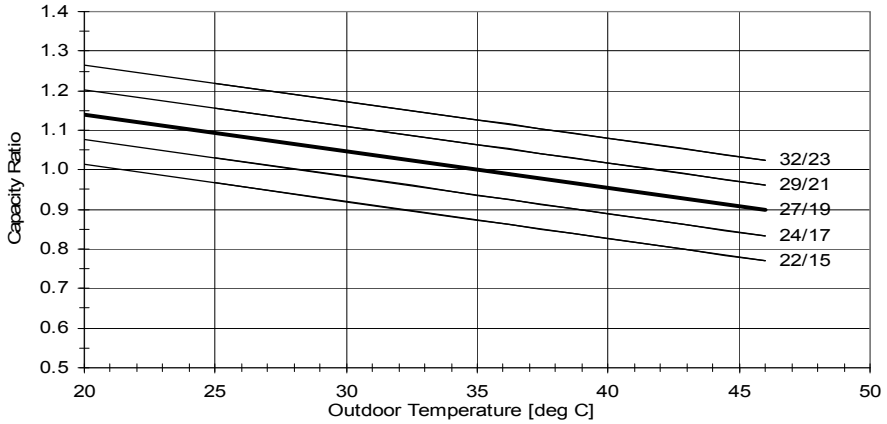
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
SC – Sensible Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.2.2 Capacity Correction Factors



5.2.3 Heating Capacity Factors - Unit A, B, C, D or E

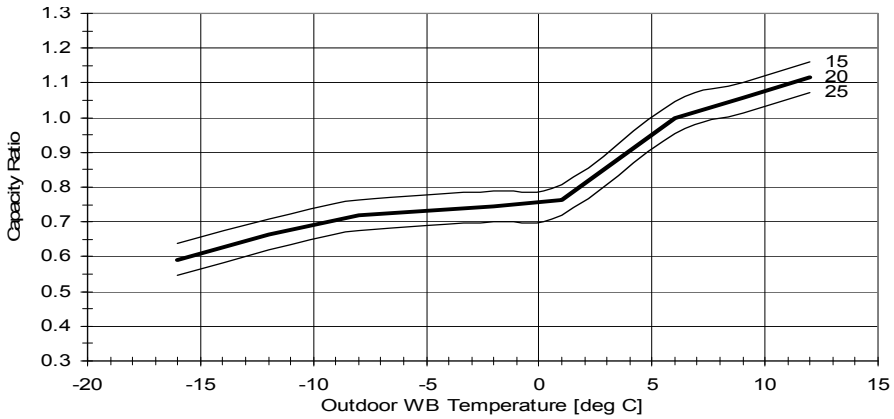
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	**1.00**	0.96
	PI	0.94	**1.00**	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.2.4 Capacity Correction Factors



5.3 LEX 35 DCI

5.3.1 Cooling Capacity Factors - Unit A, B, C, D or E

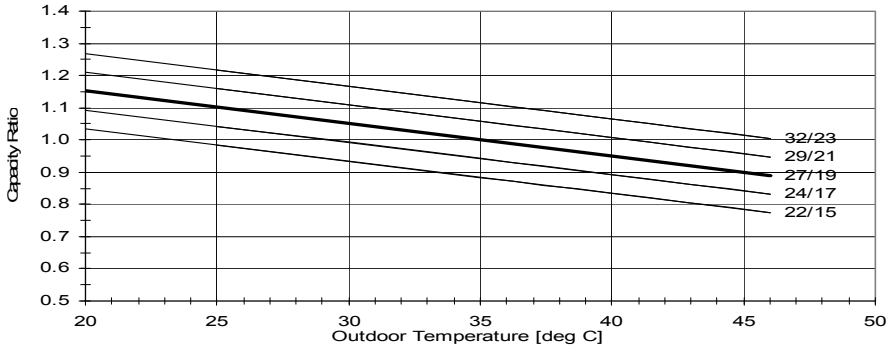
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.3.2 Capacity Correction Factors



5.3.3 Heating Capacity Factors - Unit A, B, C, D or E

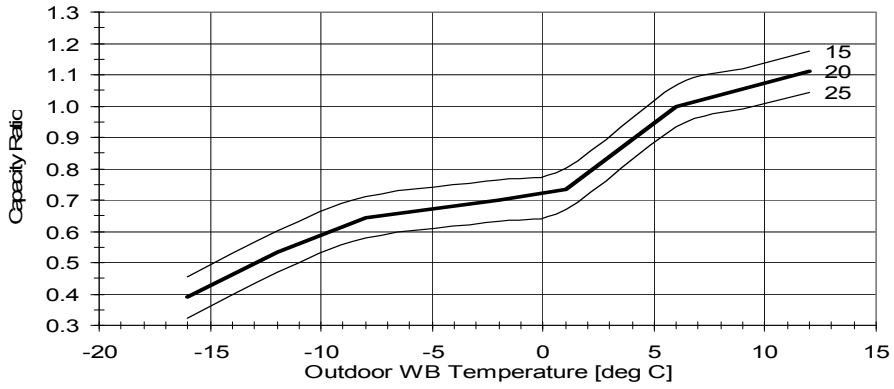
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	**1.00**	0.96
	PI	0.94	**1.00**	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.3.4 Capacity Correction Factors



5.4 LEX 50 DCI

5.4.1 Cooling Capacity Factors - Unit D or E

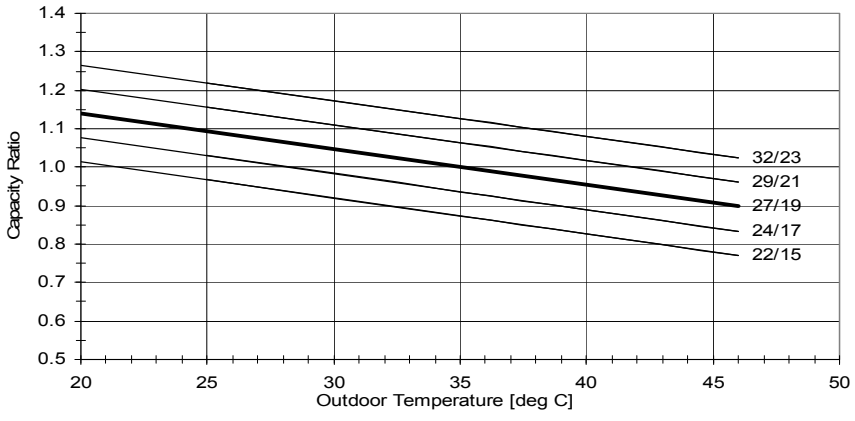
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.4.2 Capacity Correction Facto



5.4.3 Heating Capacity Factors - Unit D or E

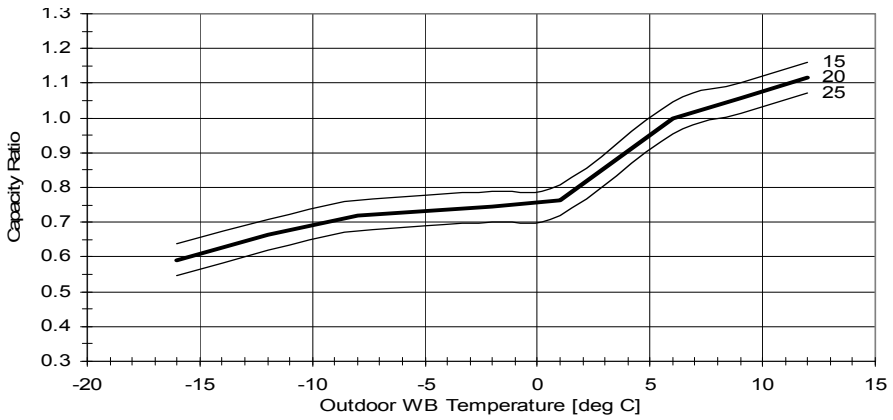
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Cooling Capacity, kW
SC – Sensible Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.5.4 Capacity Correction Factors



5.5 LEX 60 DCI

5.5.1 Cooling Capacity Factors - Unit D or E

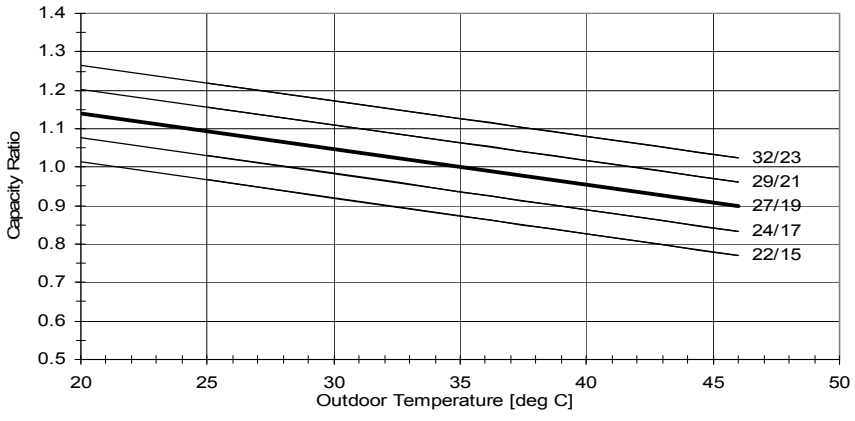
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.5.2 Capacity Correction Facto



5.5.3 Heating Capacity Factors - Unit D or E

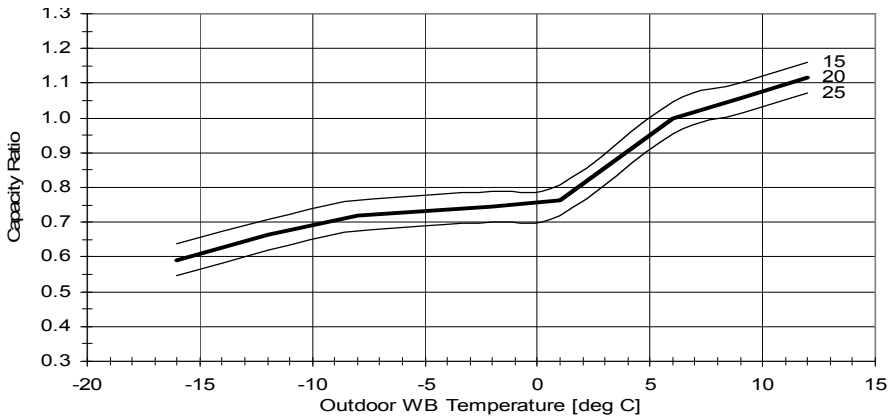
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Cooling Capacity, kW
SC – Sensible Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.5.4 Capacity Correction Factors



5.6 LEX 70 DCI

5.6.1 Cooling Capacity Factors - Unit D or E

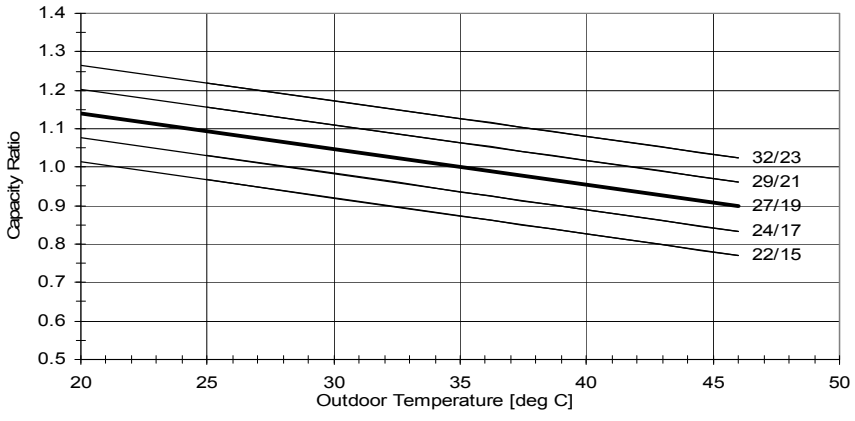
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.6.2 Capacity Correction Facto



5.6.3 Heating Capacity Factors - Unit D or E

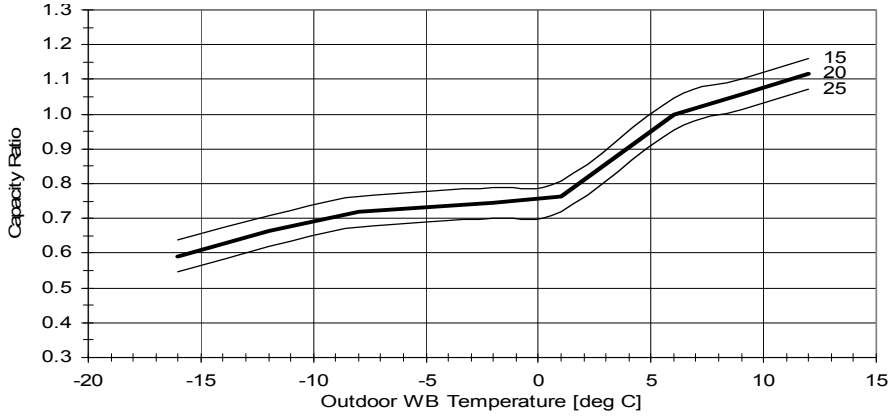
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Cooling Capacity, kW
SC – Sensible Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.6.4 Capacity Correction Factors



5.7 CN 25 DCI

5.7.1 Cooling Capacity Factors - Unit A,B,C, D or E

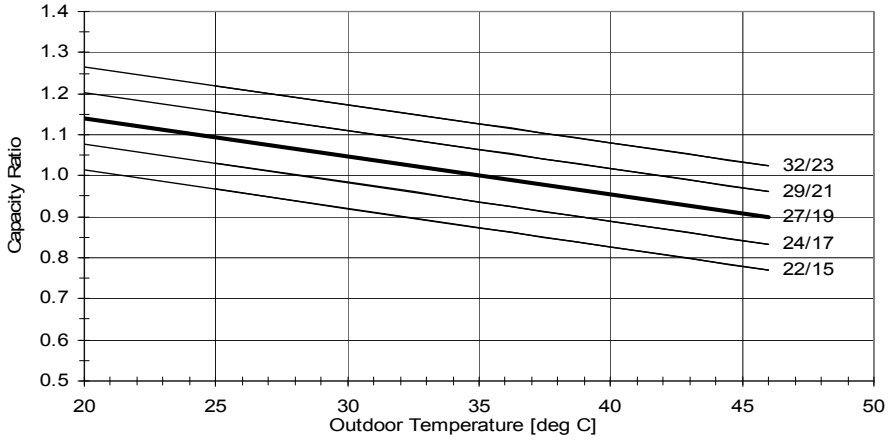
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.7.2 Capacity Correction Factors



5.7.3 Heating Capacity Factors - Unit A, B ,C, D or E

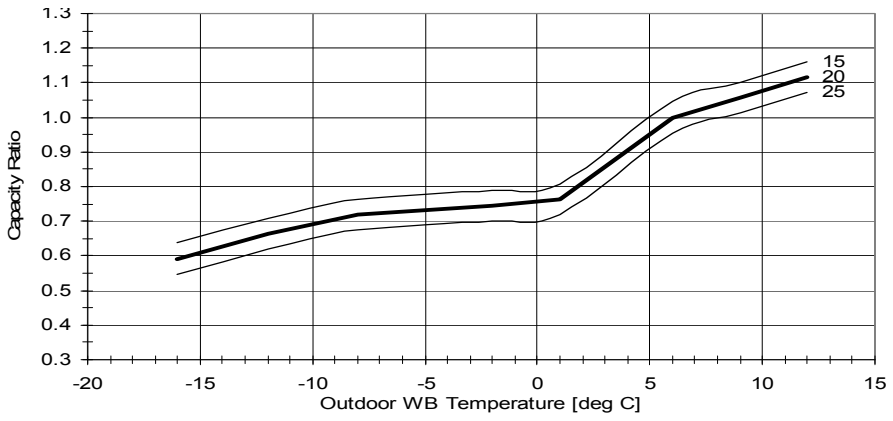
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	**1.00**	0.96
	PI	0.94	**1.00**	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.7.4 Capacity Correction Factors



5.8 CN 35 DCI

5.7.1 Cooling Capacity Factors - Run Mode Unit A, B, C, D or E

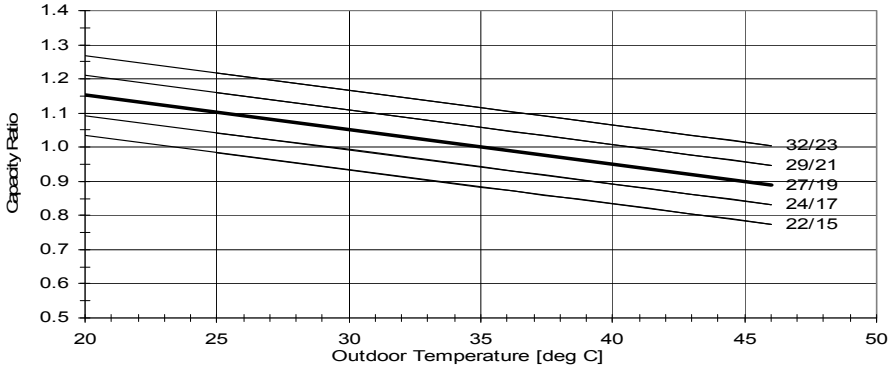
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.7.2 Capacity Correction Factors



5.7.3 Heating Capacity Factors - Unit A, B, C, D or E

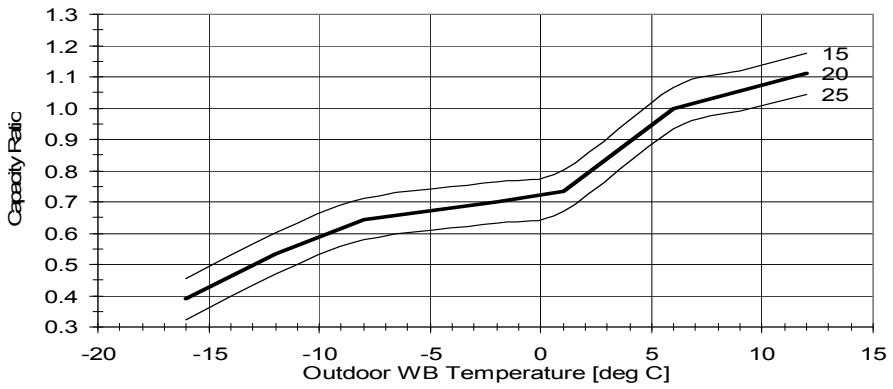
230[V] : Indoor Fan at High Speed

OD COIL ENTERING AIR DB/ WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	**1.00**	0.96
	PI	0.94	**1.00**	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.7.4 Capacity Correction Factors



5.9 CN 50 DCI

5.9.1 Cooling Capacity Factor - Unit D or E

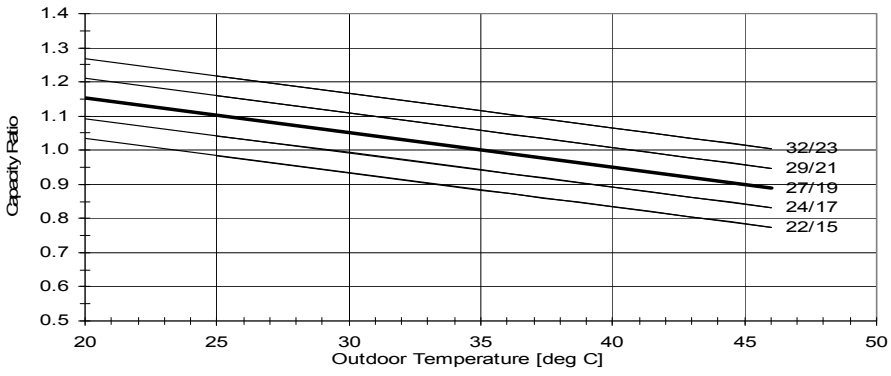
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.9.2 Capacity Correction Factors



5.9.3 Heating Capacity Factor - Unit D or E

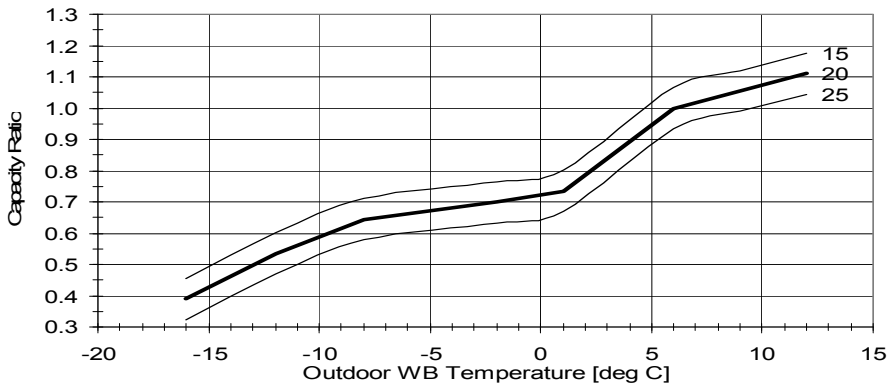
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.9.4 Capacity Correction Factors



5.10 CN 60 DCI

5.10.1 Cooling Capacity Factor - Unit D or E

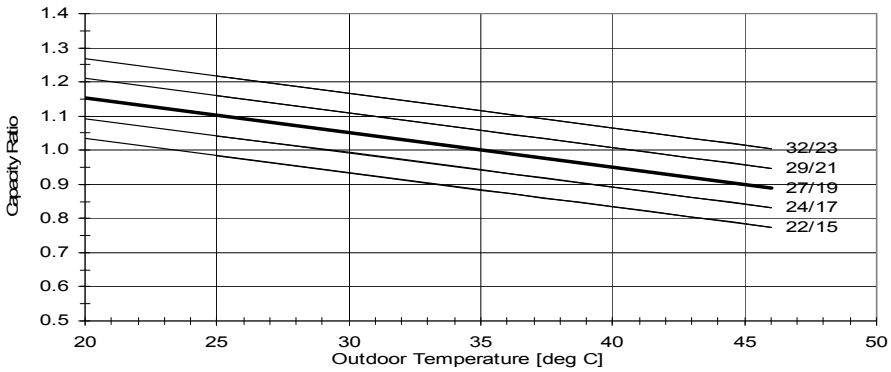
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.10.2 Capacity Correction Factors



5.10.3 Heating Capacity Factor - Unit D or E

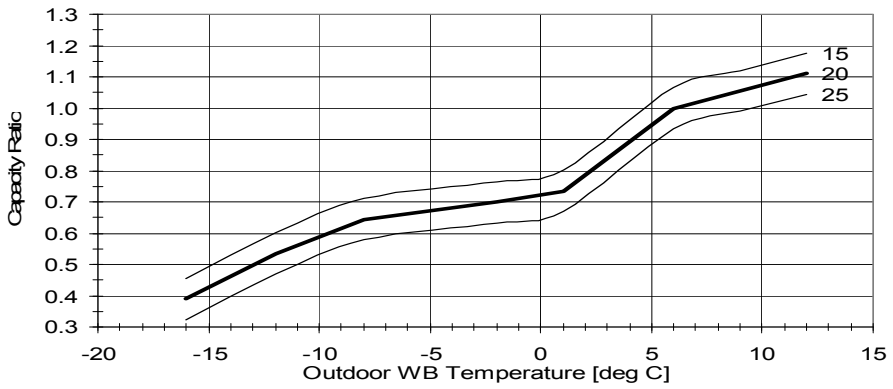
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.10.4 Capacity Correction Factors



5.11 CN 70 DCI

5.11.1 Cooling Capacity Factor - Unit D or E

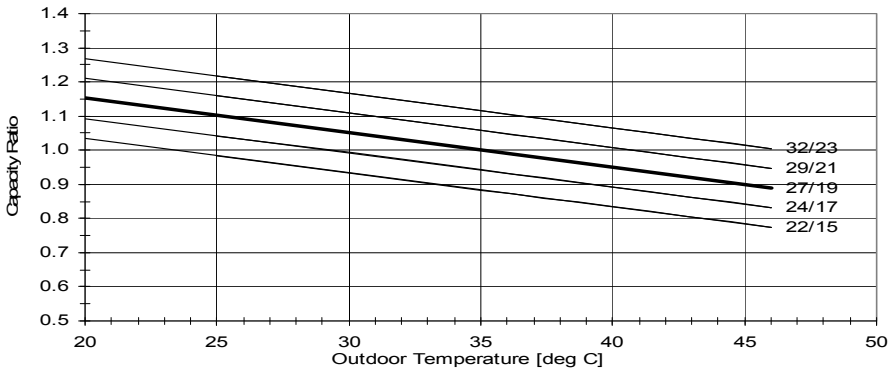
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.11.2 Capacity Correction Factors



5.11.3 Heating Capacity Factor - Unit D or E

230[V] : Indoor Fan at High Speed.

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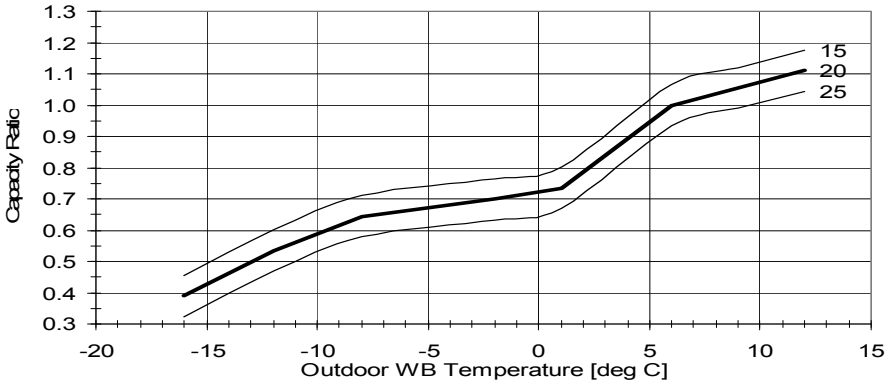
OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.11.4 Capacity Correction Factors



5.12 PXD 25 DCI

5.12.1 Cooling Capacity Factors - Unit A, B, C, D or E

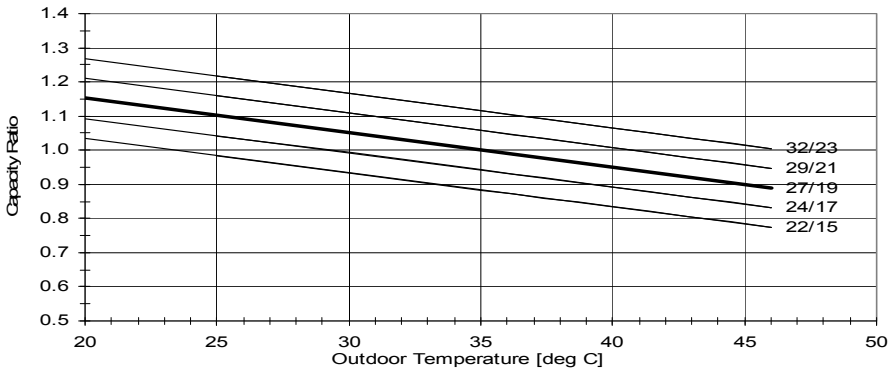
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.12.2 Capacity Correction Factors



5.12.3 Heating Capacity Factor - Unit A, B, C, D or E

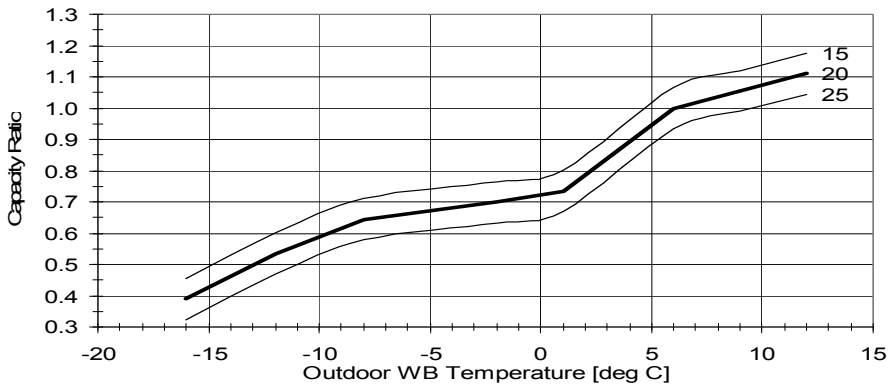
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	**1.00**	0.96
	PI	0.94	**1.00**	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.12.4 Capacity Correction Factors



5.13 PXD 35 DCI

5.13.1 Cooling Capacity Factors - Unit A, B, C, D or E

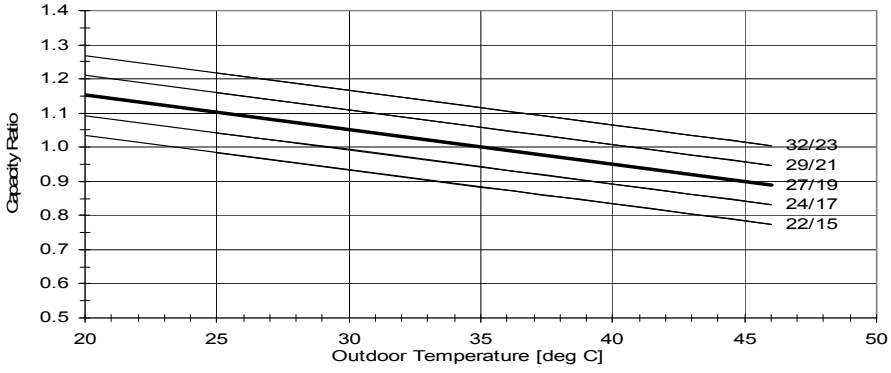
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.97	1.03	1.09	1.16	1.22
	SC	1.01	1.03	1.05	1.07	1.09
	PI	0.79	0.80	0.82	0.83	0.85
30	TC	0.92	0.98	1.05	1.11	1.17
	SC	0.98	1.00	1.03	1.05	1.07
	PI	0.88	0.89	0.91	0.92	0.94
35	TC	0.87	0.94	**1.00**	1.06	1.13
	SC	0.96	0.98	**1.00**	1.02	1.04
	PI	0.97	0.99	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.02	1.08
	SC	0.93	0.95	0.97	1.00	1.02
	PI	1.06	1.08	1.09	1.11	1.12
46	TC	0.77	0.83	0.90	0.96	1.02
	SC	0.90	0.92	0.94	0.96	0.99
	PI	1.17	1.19	1.20	1.22	1.23

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.13.2 Capacity Correction Factors



5.13.3 Heating Capacity Factors - Unit A, B, C, D or E

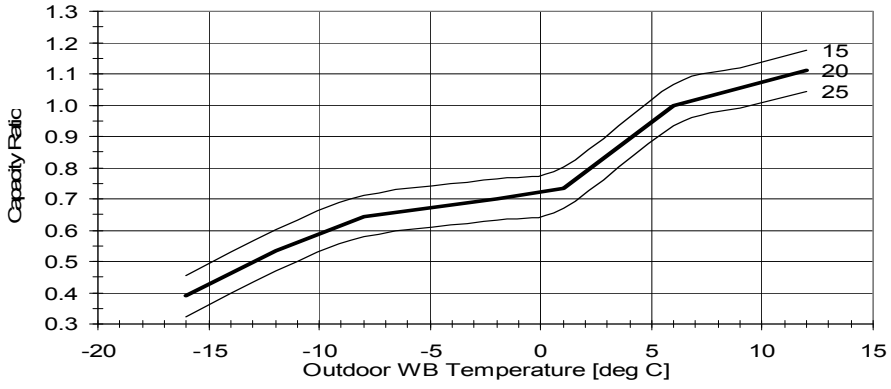
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.64	0.59	0.55
	PI	0.60	0.66	0.72
-10/-12	TC	0.71	0.66	0.62
	PI	0.72	0.78	0.85
-7/-8	TC	0.76	0.72	0.67
	PI	0.82	0.88	0.94
-1/-2	TC	0.79	0.75	0.70
	PI	0.86	0.92	0.98
2/1	TC	0.81	0.76	0.72
	PI	0.89	0.95	1.01
7/6	TC	1.04	1.00	0.96
	PI	0.94	1.00	1.06
10/9	TC	1.10	1.06	1.01
	PI	1.00	1.06	1.12
15/12	TC	1.16	1.12	1.07
	PI	1.05	1.11	1.17
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.13.4 Capacity Correction Factors



5.14 PXD 50 DCI

5.14.1 Cooling Capacity Factor - Unit D or E

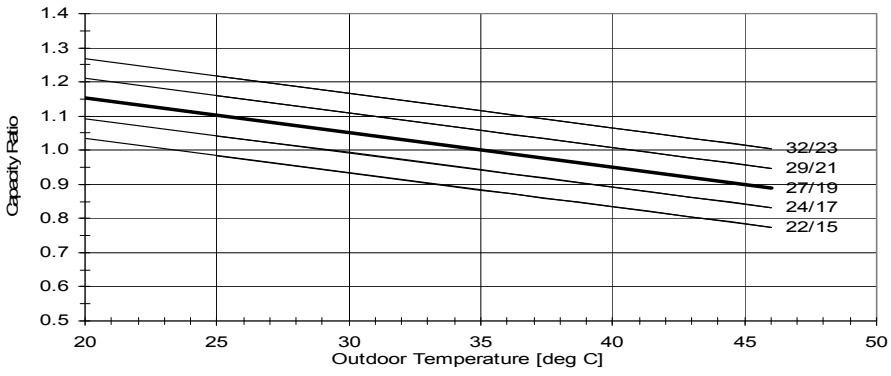
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.14.2 Capacity Correction Factors



5.14.3 Heating Capacity Factor - Unit D or E

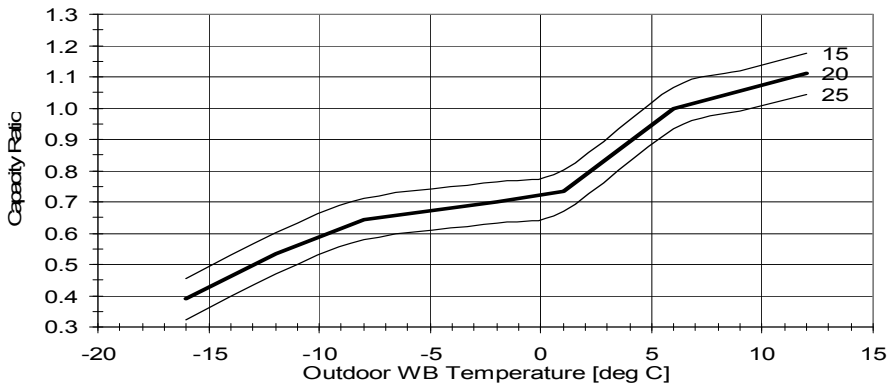
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24 (Protection Range)	TC	85 - 105 % of nominal		
	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.14.4 Capacity Correction Factors



5.15 PXD 60 DCI

5.15.1 Cooling Capacity Factors - Unit D or E

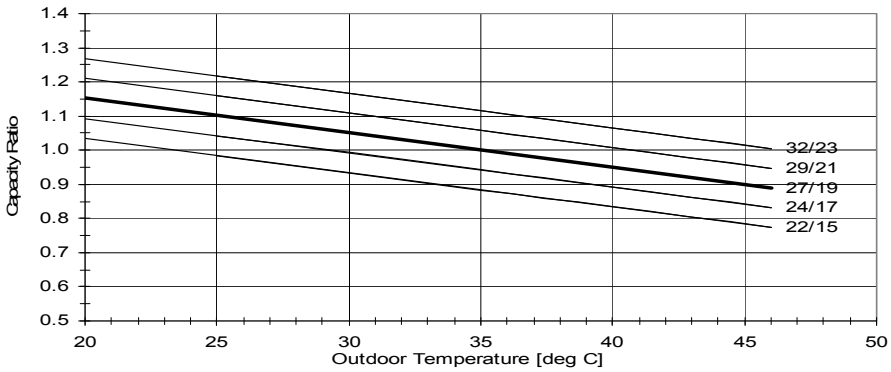
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.15.2 Capacity Correction Factors



5.15.3 Heating Capacity Factors - Unit D or E

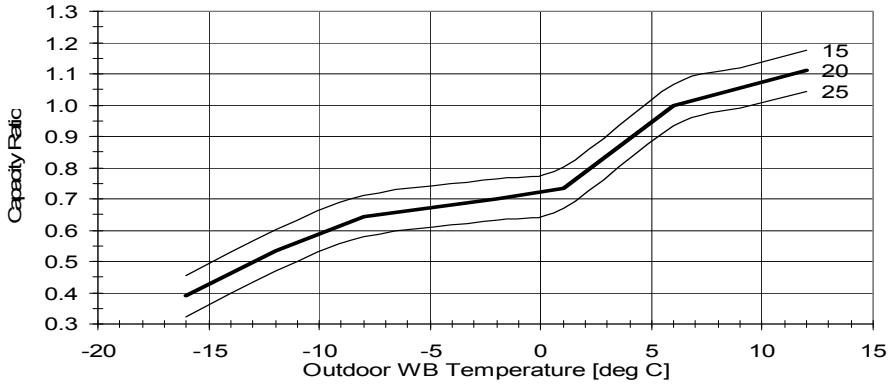
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.15.4 Capacity Correction Factors



5.16 PXD 70 DCI

5.16.1 Cooling Capacity Factors - Unit D or E

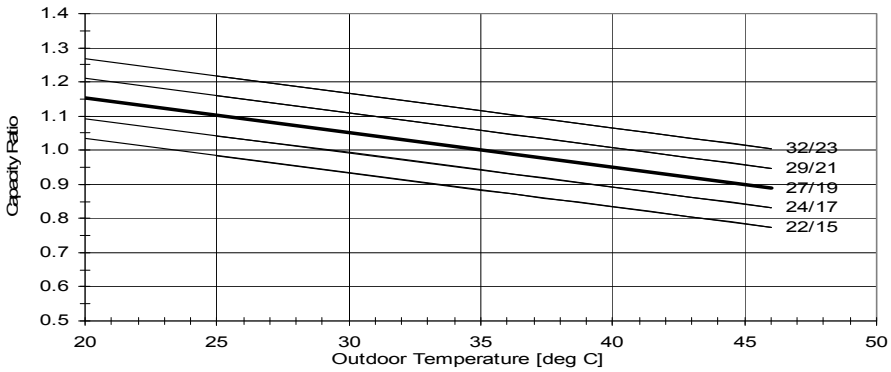
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB/WB TEMPERATURE [ºC]				
		22/15	24/17	27/19	29/21	32/23
-10 - 20 (protection range)	TC	80 - 110 % of nominal				
	SC	80 - 105 % of nominal				
	PI	25 - 50 % of nominal				
25	TC	0.99	1.04	1.10	1.16	1.22
	SC	1.05	1.07	1.08	1.10	1.11
	PI	0.76	0.77	0.79	0.81	0.82
30	TC	0.93	0.99	1.05	1.11	1.17
	SC	1.01	1.03	1.04	1.06	1.07
	PI	0.86	0.88	0.90	0.91	0.93
35	TC	0.88	0.94	**1.00**	1.06	1.12
	SC	0.97	0.98	**1.00**	1.02	1.03
	PI	0.97	0.98	**1.00**	1.02	1.03
40	TC	0.83	0.89	0.95	1.01	1.07
	SC	0.93	0.94	0.96	0.97	0.99
	PI	1.07	1.09	1.11	1.12	1.14
46	TC	0.77	0.83	0.89	0.95	1.00
	SC	0.88	0.89	0.91	0.93	0.94
	PI	1.20	1.21	1.23	1.25	1.27

LEGEND

TC – Total Cooling Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OD – Outdoor

5.16.2 Capacity Correction Factors



5.16.3 Heating Capacity Factors - Unit D or E

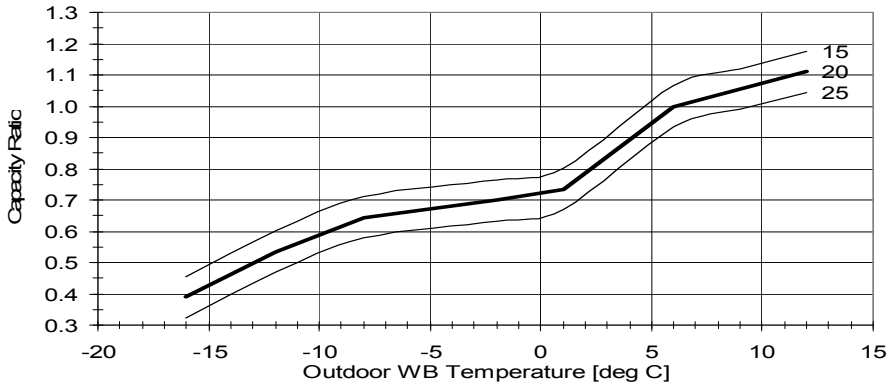
230[V] : Indoor Fan at High Speed.

OD COIL ENTERING AIR DB/WB TEMPERATURE [ºC]	DATA	ID COIL ENTERING AIR DB TEMPERATURE [ºC]		
		15	20	25
-15/-16	TC	0.46	0.39	0.32
	PI	0.70	0.75	0.80
-10/-12	TC	0.60	0.54	0.47
	PI	0.79	0.84	0.89
-7/-8	TC	0.71	0.64	0.58
	PI	0.86	0.91	0.96
-1/-2	TC	0.76	0.70	0.63
	PI	0.89	0.94	0.99
2/1	TC	0.80	0.74	0.67
	PI	0.92	0.97	1.02
7/6	TC	1.07	**1.00**	0.93
	PI	0.95	**1.00**	1.05
10/9	TC	1.12	1.06	0.99
	PI	0.97	1.02	1.07
15/12	TC	1.18	1.11	1.04
	PI	0.99	1.04	1.09
15-24	TC	85 - 105 % of nominal		
(Protection Range)	PI	80 - 120 % of nominal		

LEGEND

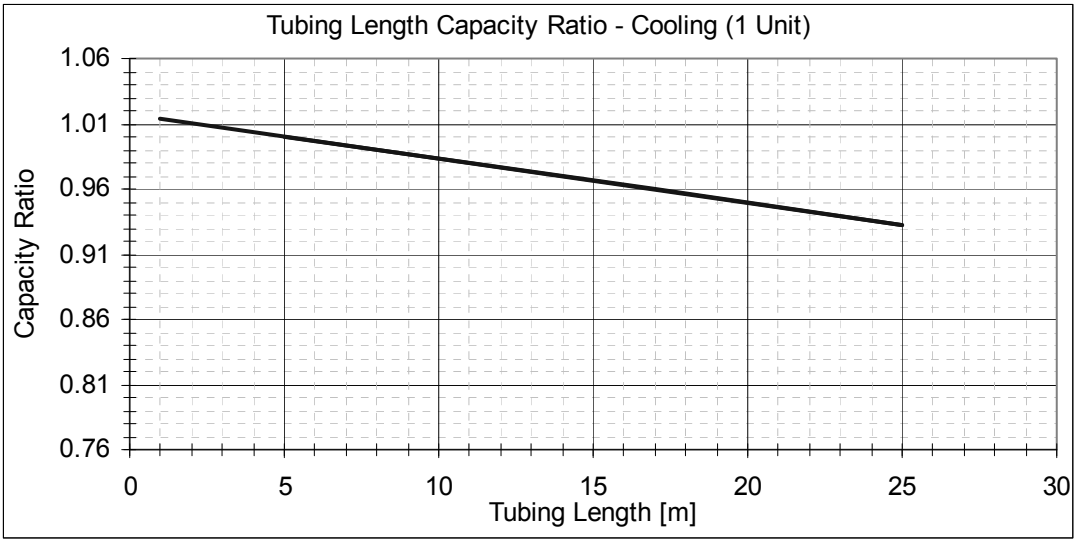
TC – Total Heating Capacity, kW
PI – Power Input, kW
WB – Wet Bulb Temp., (ºC)
DB – Dry Bulb Temp., (ºC)
ID – Indoor
OU – Outdoor

5.16.4 Capacity Correction Factors

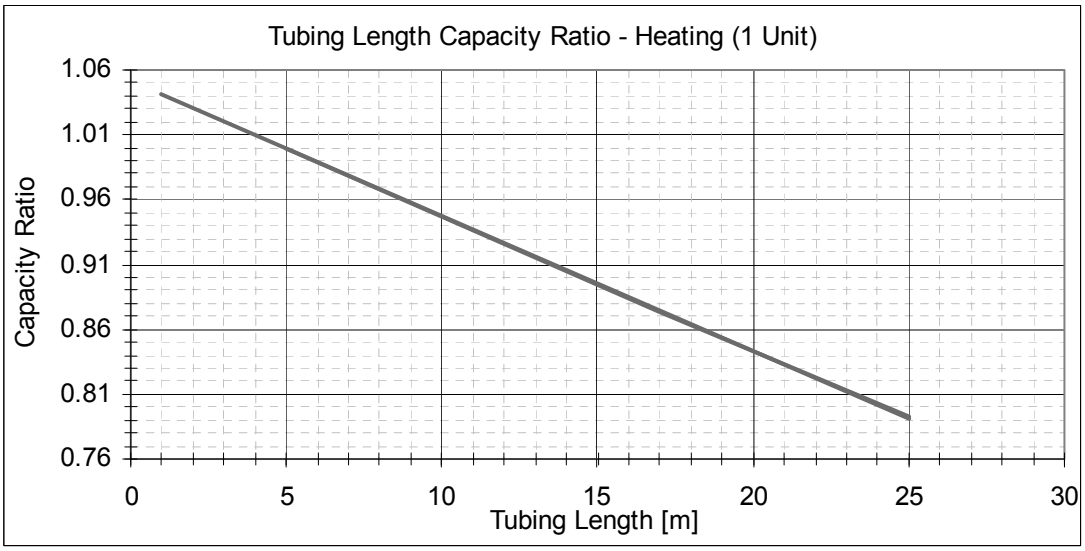


5.17 Tubing Length Capacity Correction Factor

5.17.1 Cooling



5.17.2 Heating



5.18 Model Correction Factors (F_M)

Model	Capacity		Power input	
	Cooling	Heating	Cooling	Heating
LEX DCI INV	1.00	1.00	1.00	1.00
DELTA DCI INV	0.88	0.88	0.93	0.93
HAD DCI INV	0.88	0.88	0.93	0.93
TOP DCI INV	0.88	0.88	0.93	0.93
CN DCI INV	1.03	1.07	1.01	1.10
PXD DCI INV	1.00	1.00	1.00	1.00
LSN DCI INV	1.05	1.07	0.95	0.90
DNG DCI INV	1.05	1.07	1.10	1.10

15.19 Calculation Example

Outdoor Unit	**Cinco DCI**
Indoor Combination	PNX009+PNX009+PNX009+CK0009+PNX018
Operation Mode	Cooling Mode
Conditions Indoor	22°CDB/15°WB
Conditions Oudoor	30°CDB
Tubing length	20m+10m+5m+25m

Cooling Capacity calculation:

C_{A-D} [KW] = Nominal x F_M x F_C x F_T

Total System Capacity [KW] (TC) = C_A + C_B + C_C + C_D

Indoor Unit	Nom' Cooling Capacity [KW]	Model Factor (F_M)	Condition Factor (F_C)	Tubing(L) Factor (F_T)	Corrected Capacity [KW], (C_{A-D})
Room A – PNX009	1.80	1.00	0.92	0.95	C_A = 1.80x1.00x0.92x0.95=**1.6**
Room B – PNX009	1.80	1.00	0.92	0.985	C_B = 1.80x1.00x0.92x0.985=**1.6**
Room C – PNX009	1.80	1.00	0.92	0.985	C_C = 1.80x1.03x0.92x1.00=**1.6**
Room D – CK009	1.80	1.03	0.92	1.00	C_D = 1.80x1.03x0.92x1.00=**1.7**
Room E – PNX018	3.50	1.00	0.93	0.93	C_E = 3.50x1.00x0.93x0.93=**3.0**
				Total	**TC** =1.6+1.6+1.6+1.7+3.0=**9.5**

Cooling Power Input calculation:

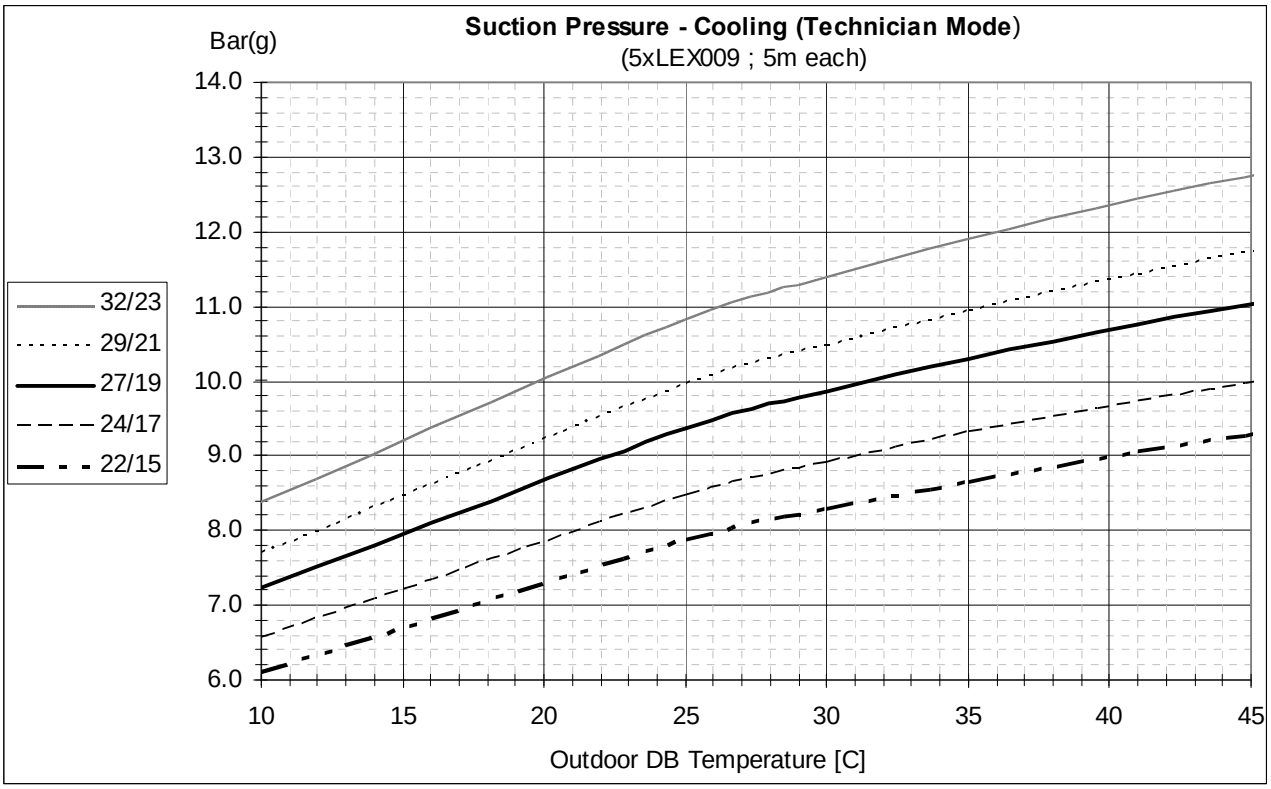
P_{A-D} [KW] = Nominal x F_M x F_C x F_T

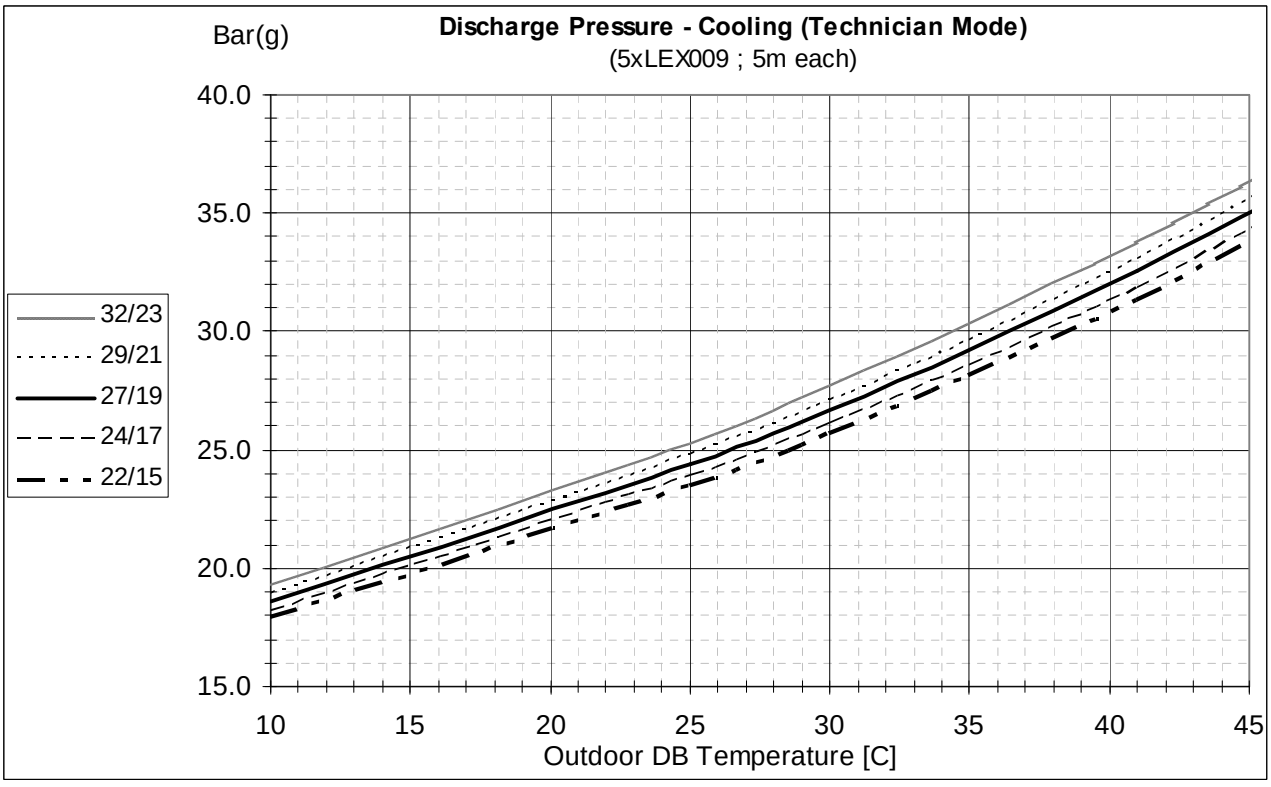
Total System Power Input [W] (TP) = P_A + P_B + P_C + P_D

Indoor Unit	Nom' Cooling Power Input [W]	Model Factor (F_M)	Condition Factor (F_C)	Corrected Power Input [W] (P_{A-D})
Room A – PNX009	2,920 / 5 = 584	1.00	0.88	P_A = 584 x 1.00 x 0.88 = 514
Room B – PNX009		1.00	0.88	P_B = 584 x 1.00 x 0.88 = 514
Room C – PNX009		1.00	0.88	P_C = 584 x 1.00 x 0.88 = 514
Room D – CK009		1.01	0.88	P_D = 584 x 1.01 x 0.88 = 519
Room D – PNX018		1.00	0.86	P_E = 584 x 1.00 x 0.86 = 502
			Total	**TP** = 514 + 514 + 519 + 502 = **2,563**

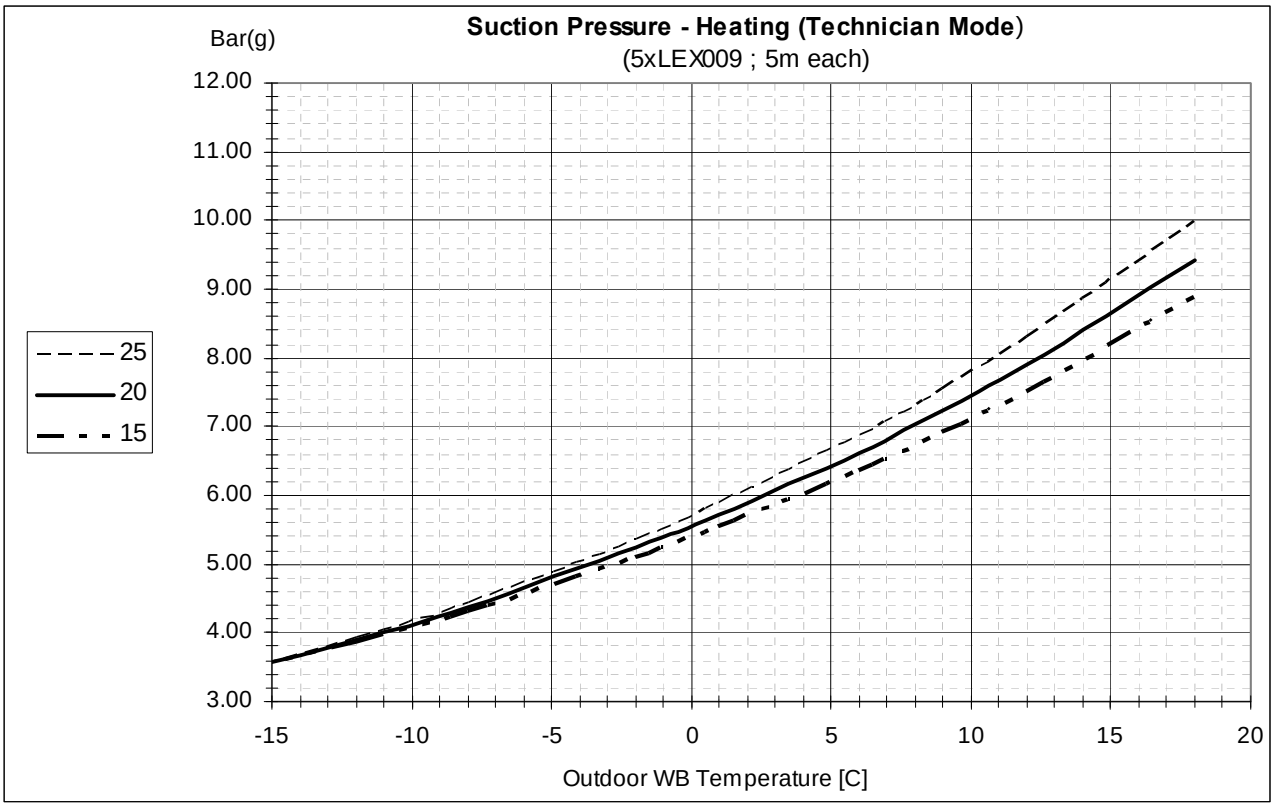
6. OPERATING CURVES

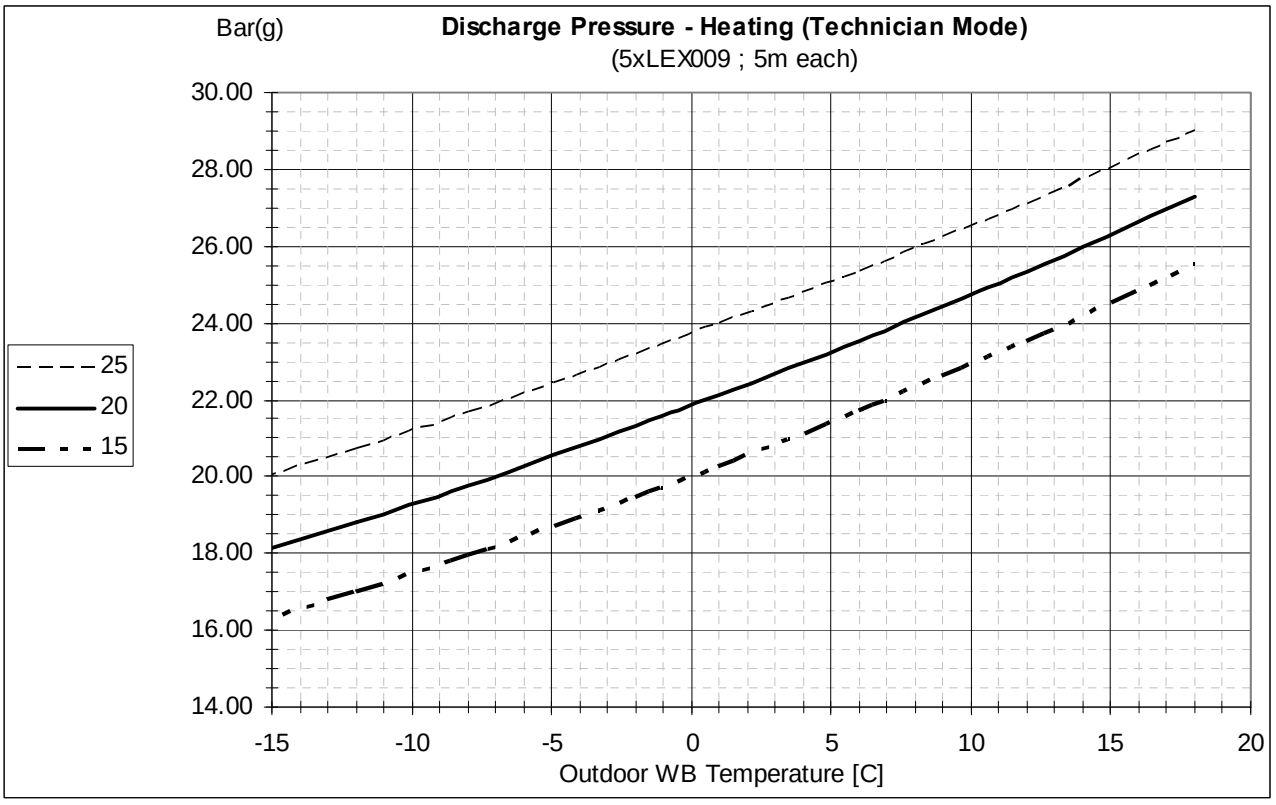
6.1 Cooling – Technician Mode



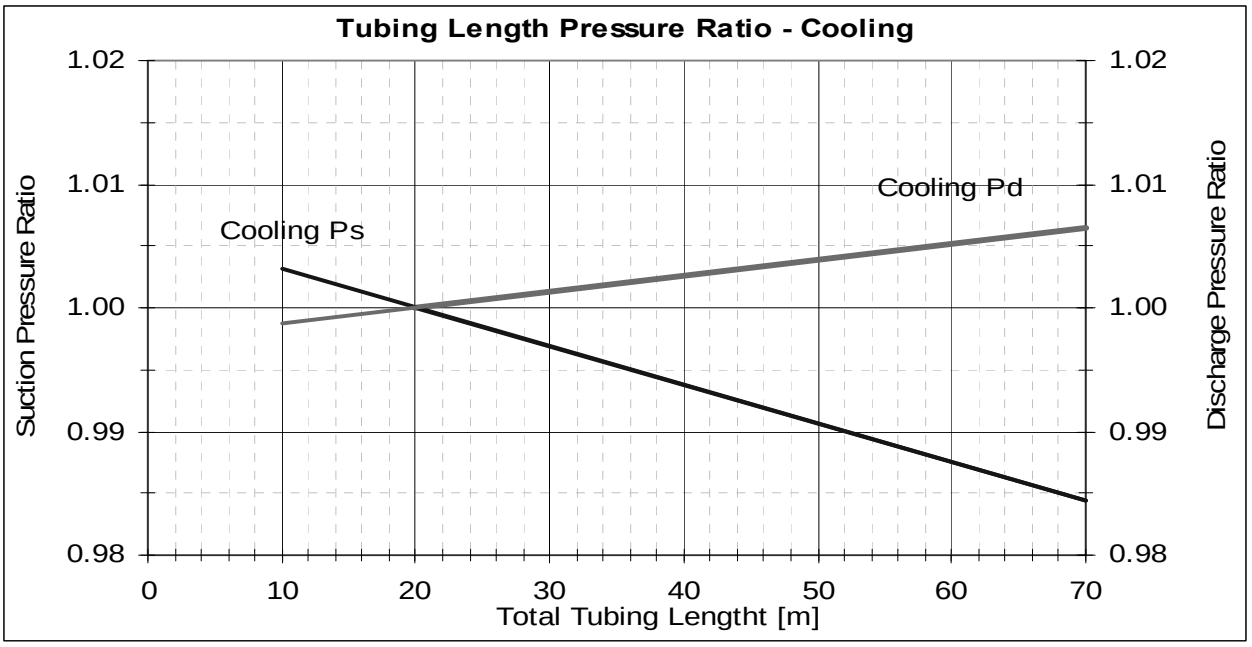


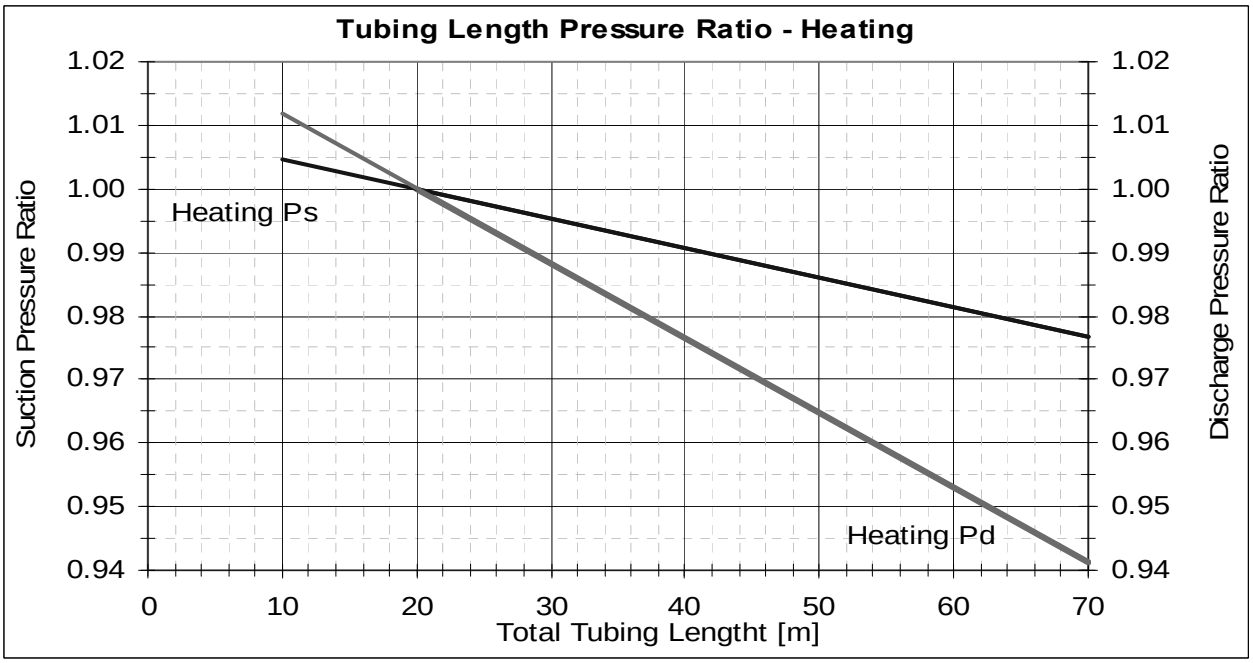
6.2 Heating – Technician Mode





6.3 Tubing Length correction Factor





6.4 Outdoor Unit Code correction Factor (F_c)

ODU Code	Cooling		Heating	
	Suction Pressure	Discharge Pressure	Suction Pressure	Discharge Pressure
4	1.00	1.00	1.00	1.00
4.5	1.02	1.01	1.00	0.99
5	1.04	1.01	0.99	0.98
5.5	1.05	1.02	0.99	0.97
6	1.07	1.02	0.98	0.96

6.5 Calculation Example

Outdoor Unit	Cinco DCI
Indoor Combination	LEX009+LEX009+LEX009+CK009+LEX018
Operation Mode	Cooling Mode
Conditions Indoor	22°CDB/15°WB
Conditions Oudoor	30°CDB
Tubing length	20m+10m+10m+5m+15m

Cooling Pressure calculation:
Pressure [Barg] = Nominal x F_C x F_T

Unit	Code
Room A – LEX009	1.0
Room B – LEX009	1.0
Room C – LEX009	1.0
Room D – CK009	1.0
Room E – LEX018	2.0
ODU Code (Total)	6.0

Nominal Pressure [Barg]		ODU Code Factor (F_C)	Tubing Length Factor (F_T)	Corrected Pressure [Barg]
Discharge	24.5	1.02	1.005	Pd= 24.5 x 1.02 x 1.005 = 25.11
Suction	9.0	1.07	0.988	Ps= 9.0 x 1.07 x 0.988 = 9.51

7. SOUND LEVEL CHARACTERISTICS

7.1 Outdoor Units

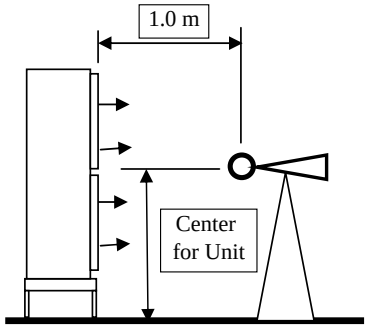
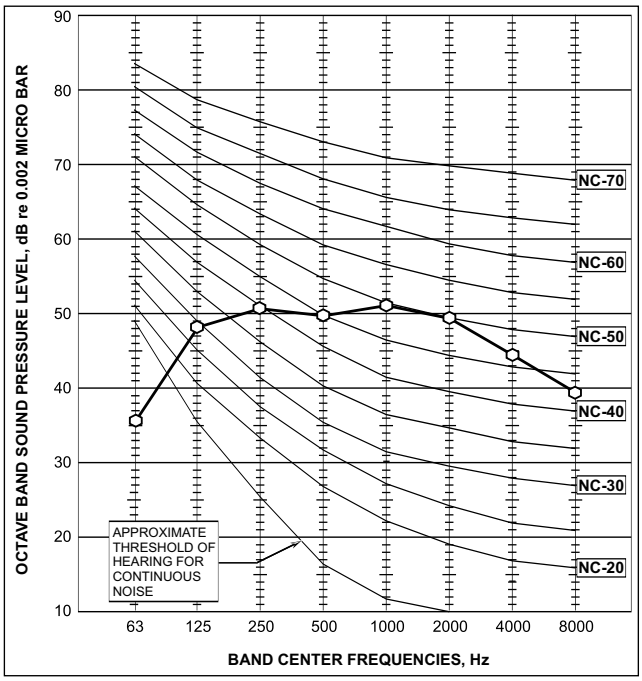


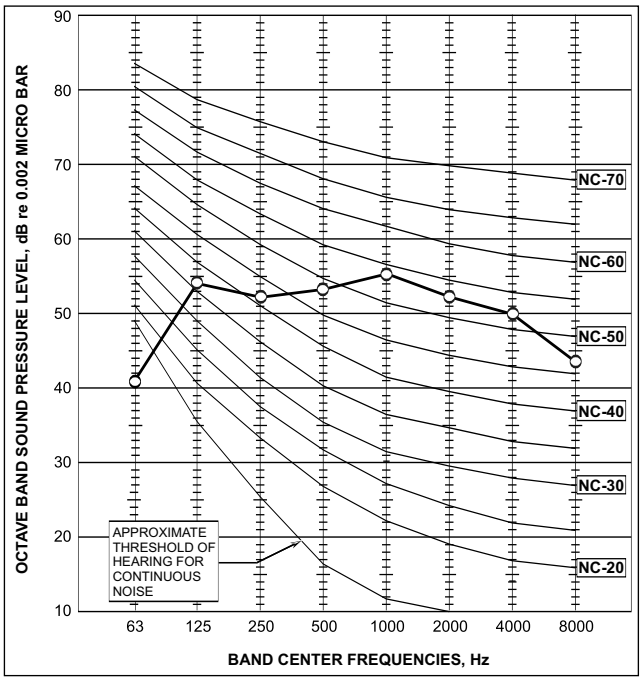
Figure 1

7.2 Sound Pressure Level Spectrum (Measured as Figure 1)

CINCO 100 DCI Cooling



CINCO 100 DCI Heating



8. ELECTRICAL DATA

8.1 Cinco 100 DCI

Power Supply	1 PH, 220-240 VAC, 50Hz
Connected to	Outdoor
Maximum Current	25 A
Inrush Current	35 A
Starting Current	11 A
Circuit breaker	25 A
Power supply wiring - No. x cross section	3 X 4.0 mm^2
Interconnecting cable - No. x cross section	4 X 1.5 mm^2 (For each IDU)

Note:

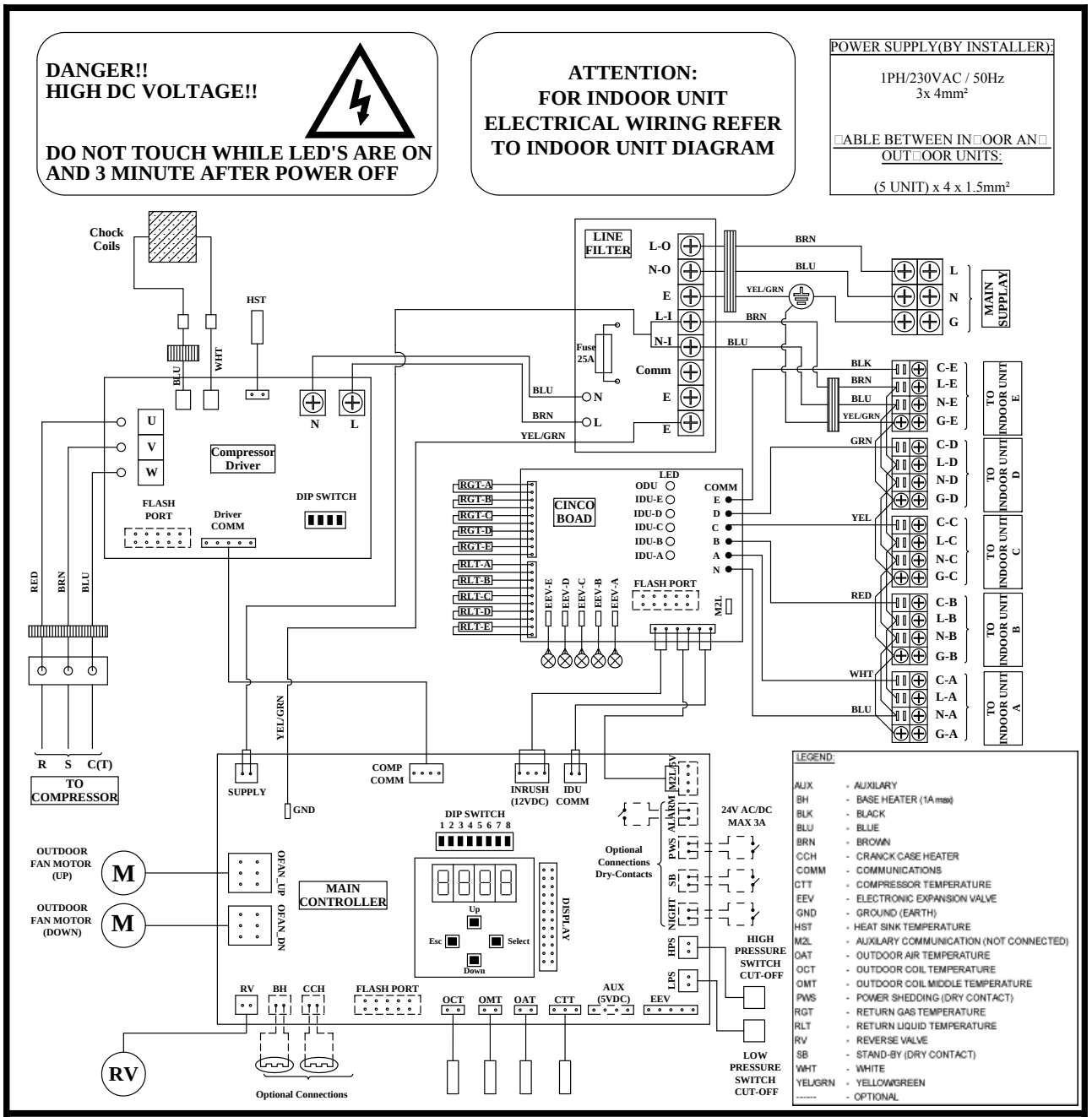
- Inrush current is the current when power is up. (charging the DC capacitors at outdoor PCB).
- Starting current is the current at comp; start up.

NOTE

Power wiring cord should comply with local lows and electrical regulations requirements.

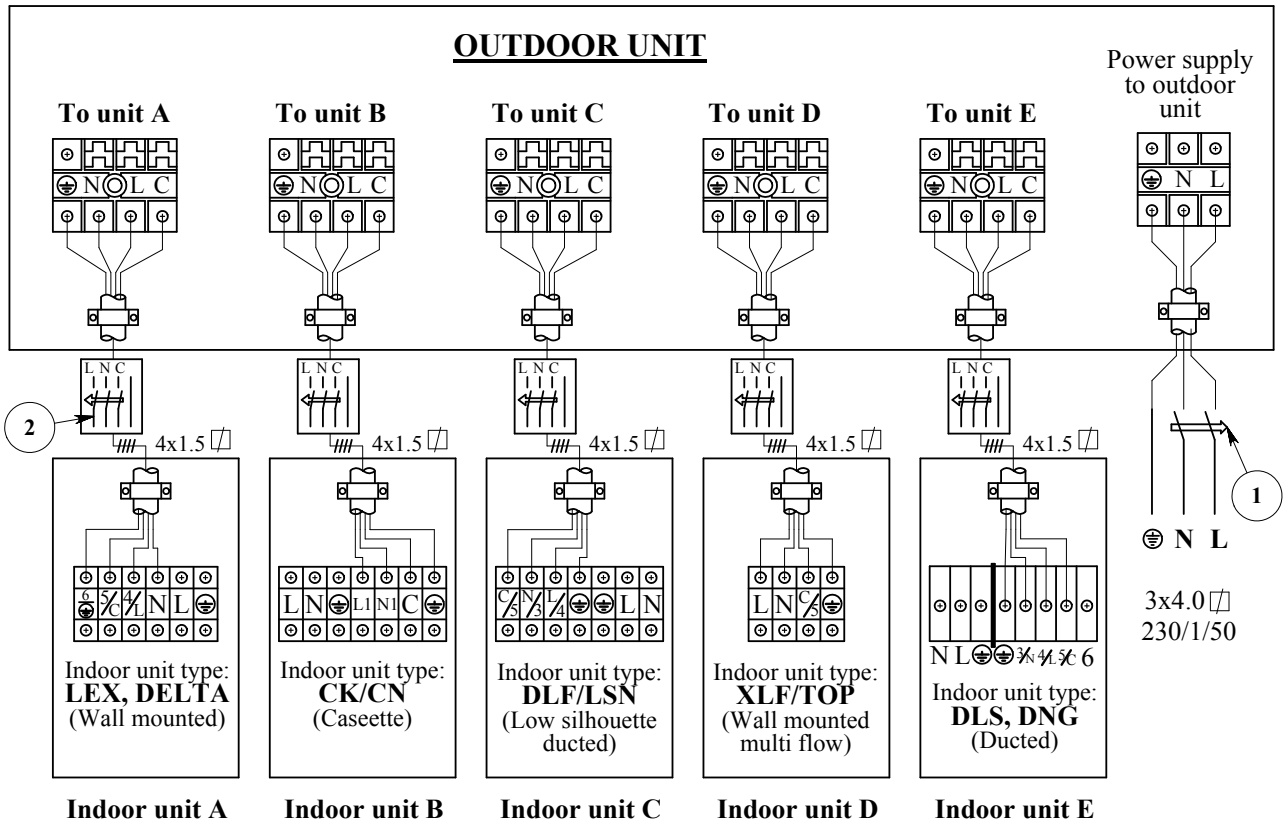
9. WIRING DIAGRAMS & ELECTRICAL CONNECTIONS

9.1 Outdoor Units: CINCO 100 DCI



OUTDOOR UNIT WIRING DIAGRAM - MULTI SPLIT CINCO DCI **P/N: 425930 Rev 01**

9.2 1PH UNIT POWER SUPPLY TO OUTDOOR



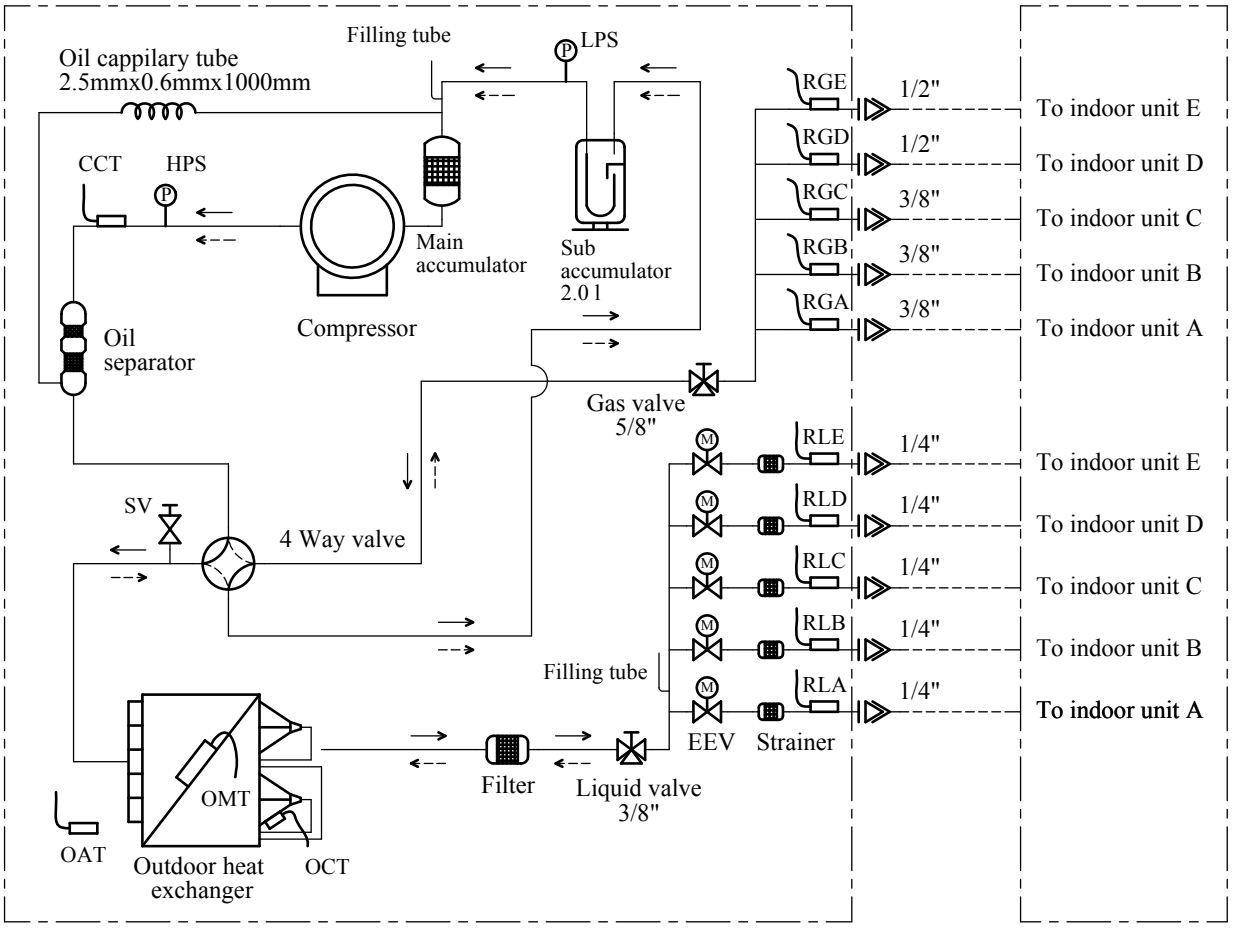
1. Main power breaker.
2. Power breaker (*by installer).

* The power breaker must be of type that disconnects all poles with 3 mm contact opening.
Indoor unit can be of different type according catalog.

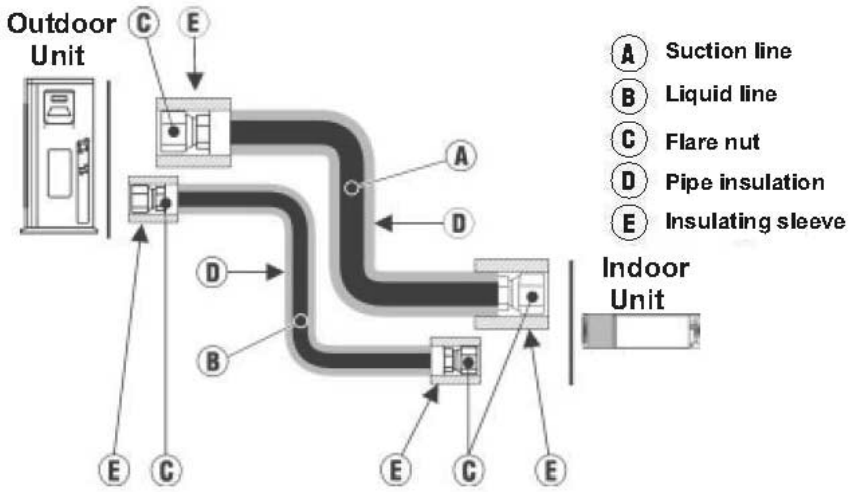
10. REFRIGERATION DIAGRAMS

10.1 CINCO 100 DCI

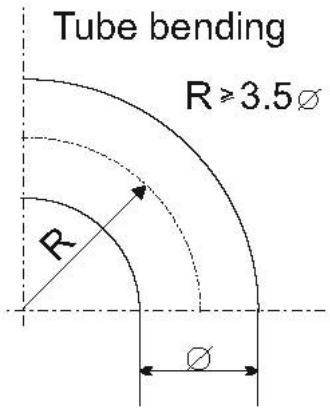
Outdoor Unit Refrigerant System Diagram

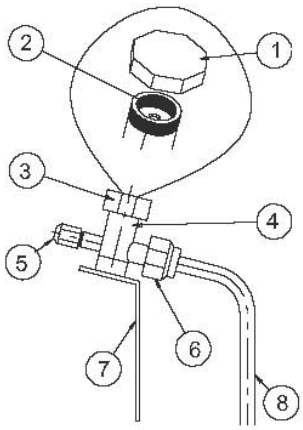


11. TUBING CONNECTIONS



A Suction line
B Liquid line
C Flare nut
D Pipe insulation
E Insulating sleeve





TUBE (Inch) / TORQUE (Nm)	1/4"	3/8"	1/2"	5/8"	3/4"
Flare Nuts	11-13	40-45	60-65	70-75	80-85
Valve Cap	13-20	13-20	18-25	18-25	40-50
Service Port Cap	11-13	11-13	11-13	11-13	11-13

1. Valve Protection Cap-end
2. Refrigerant Valve Port (use Allen wrench to open/close)
3. Valve Protection Cap
4. Refrigerant Valve
5. Service Port Cap
6. Flare Nut
7. Unit Back Side
8. Copper Tube

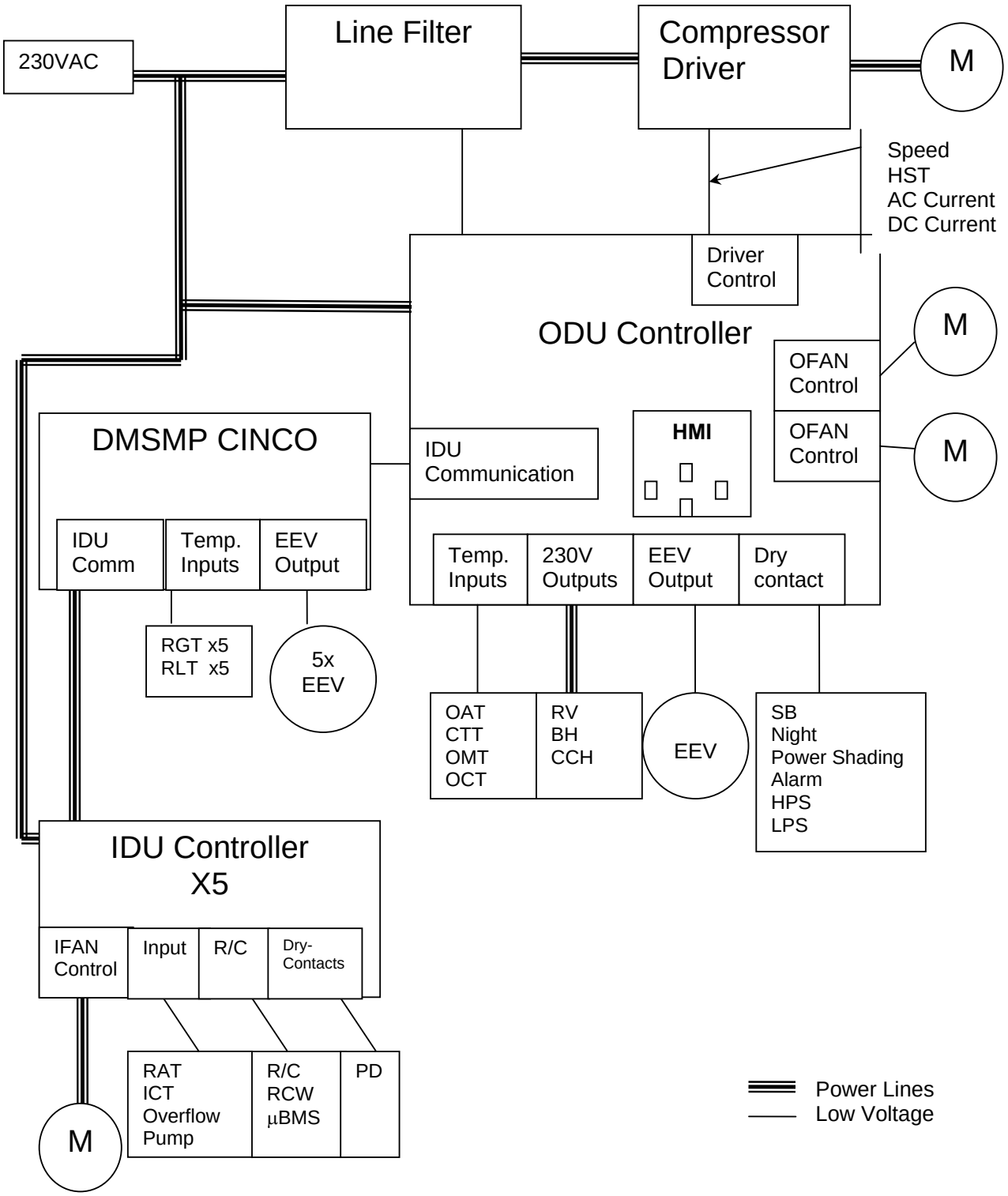
12. CONTROL SYSTEM

12.1 Abbreviations

Abbreviation	Definition
A/C	Air Conditioner
BMS	Building Management System
CCR	Compressor Current
CCH	Crankcase Heater
COMP	Compressor
CTT	Compressor Top Temperature sensor
DCI	DC Inverter
DMSMP	Dummy Multi Split multi Pipe – Control board
E²PROM, EEP	Erase Enable Programmable Read Only Memory
EEV	Electronic Expansion Valve
HE	Heating Element
HMI	Human Machine Interface
HPS	High Pressure Switch
HST	Heat Sink Temperature sensor
Hz	Hertz (1/sec) – electrical frequency
ICT	Indoor Coil Temperature (RT2) sensor
IDU	Indoor Unit
IFAN	Indoor Fan
LPS	Low Pressure Switch
M2L	Mega Tool (Monitoring SW)
MCU	Micro Controller Unit
NA	Not Applicable
OAT	Outdoor Air Temperature sensor
OCT	ODU Coil Temperature sensor
OMT	Outdoor middle coil temperature sensor
ODU	Outdoor Unit
ODUC	Outdoor Unit Control board
OFAN	Outdoor Fan
PD	Presence Detector
PFC	Power Factor Corrector
RAC	Residential A/C
RAT	Return (Room) Air Temperature sensor
R/C	Remote Control
RC	Reverse Cycle (Heat Pump)
RGT	Return Gas Temperature sensor
RLT	Return Liquid Temperature sensor
RPS	Rounds per second (mechanical speed)
RV	Reverse Valve
SB,STBY	Stand By
SH	Super-Heat
SPT	Set Point Temperature (In R/C)
S/W	Software
TBD	To Be Defined
TEMP	Temperature
TMR	Timer
TPT	Technician peripherial Test

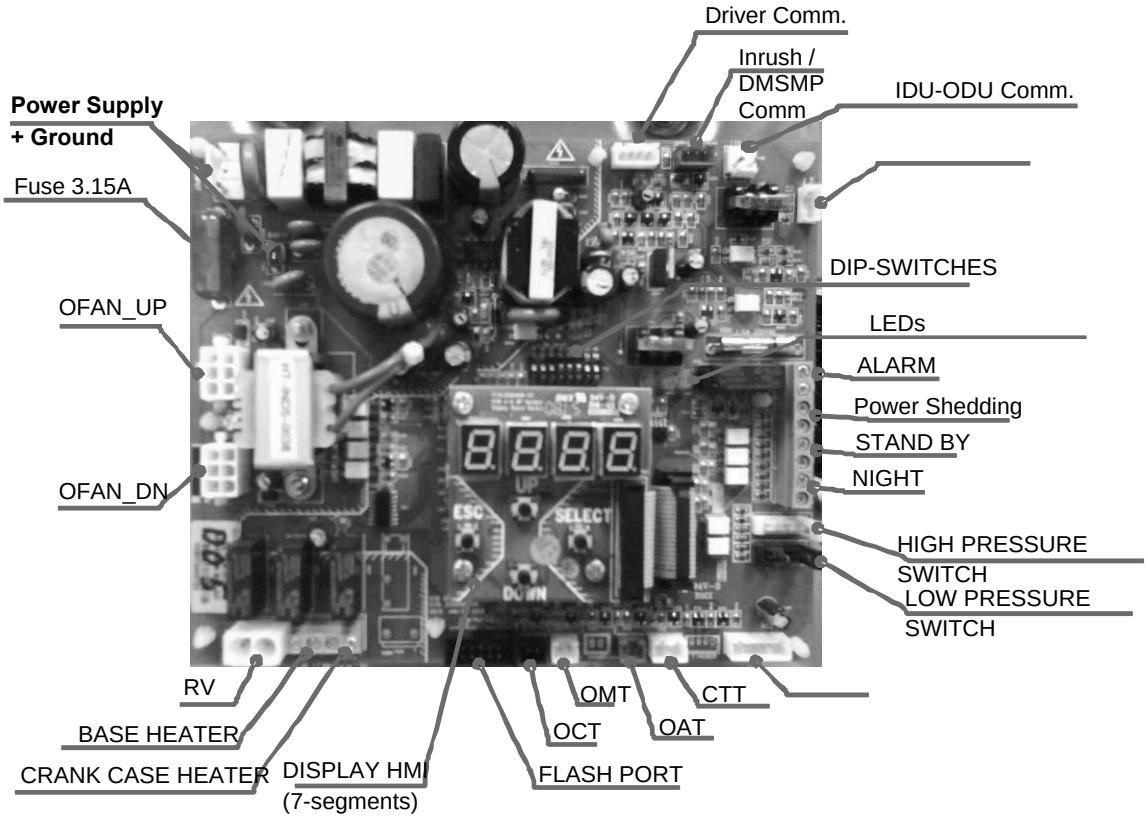
12.2 Product Overview

12.2.1 Block Diagram

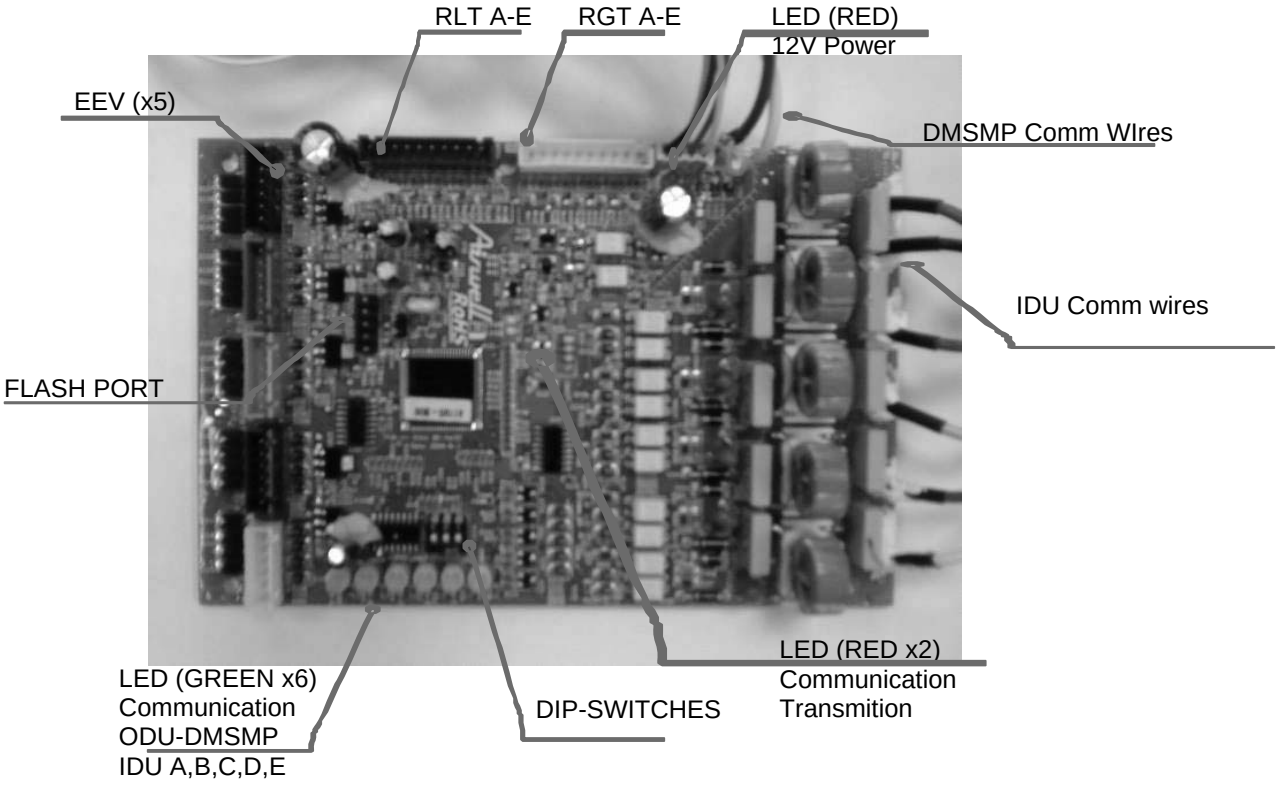


12.2.2 Controller overview

12.2.2.1 Main Controller Outdoor Unit



12.2.2.2 DMSMP (CINCO) Controller Outdoor Unit



12.2.3 Control Features

12.2.3.1 Compressor

DC brush less and sensor less motor inverter driven compressor.

12.2.3.2 Compressor Drive

DC inverter module to drive compressor.

12.2.3.3 Outdoor Fan

DC brush less motor(s) drive the outdoor unit fan(s).

12.2.3.4 RV

Reverse Valve set the direction of refrigerant flow in the system, thus setting the operation mode for cooling or heating.
When the solenoid is powered, system will work in heat mode.

12.2.3.5 EEV

Expansion valve operated by step motor which controls the size of the orifice.

12.2.3.6 HMI

Consists of Four “7-Segments” + four push buttons for display, monitoring and setup features.

12.2.3.7 Dry Contacts

Dry contacts are used to interface the system with an external building management system (BMS).

12.2.3.7.1 ODU Dry Contacts

- **Night** input. Switches the system to night mode when closed. During night mode, the outdoor unit fan motor(s) and compressor speed will be reduced in order to reduce the system noise level.
- **SB** input. System will be turned to Stand-by when the contact is closed.
- **Power Shedding** input. Limits the maximum power consumption when closed.
- **Alarm** output indicates a failure in the system.
  Alarm output will be activated when an ODU Faults/Protections occure. Alarm output will be **OFF** when the Fault/Protection is cleared.

12.2.3.7.2 IDU Dry Contacts

- Presence detector input.

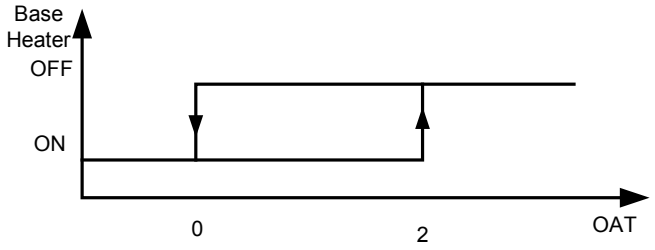
12.2.3.8 Temperature Sensors

Action	CTT	OAT	OCT	OMT	HST	RGT	RLT	ICT	RAT
Compressor Speed Cool	P		+	+	P			P	
Compressor Speed Dry	P		+	+	P			+	
Compressor Speed Heat	P	+		P	P			+	
OFAN Speed Cool	P		+	+	P				
OFAN Speed Heat			+	+	P				
EEV Cool	+	+		+		+		+	
EEV Heat	+	+	+				+	+	
Deicing	+	+	+		P				
Base Heater		+							
Cranck case Heater	+	+							
Indoor load (NLOAD)									+
IFAN Speed (Heat)								+	
Heating Element (Indoor)								+	

P – Sensor is acting only for protection
+ - Sensor is active part of the control.

12.2.3.9 Base Heater

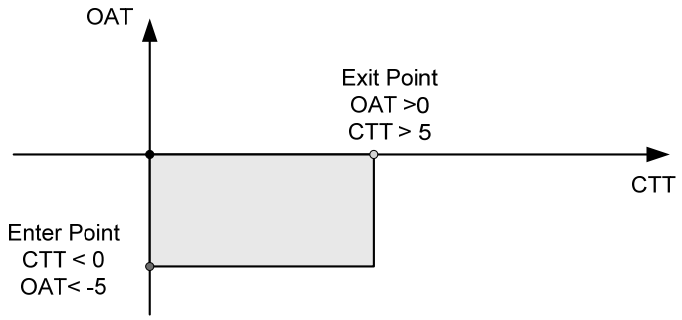
Heating element designed to melt any ice that is accumulated on the outdoor unit base during low heating operation.
The base heater will be working only when RV is “ON” according to the following graph:



When OAT is faulty the base heater will be “ON” continuously in HEAT mode.

12.2.3.10 Cranckcase Heater

Heating element designed to heatup the compressor oil cranck case during low outdoor ambient temeratures.
The crank case heater operates only when compressor is off and according to OAT and CTT as following:



- In case of OAT failure - CTT is used for the operation, OAT ignored.
- In case of CTT failure - Coil heating is disabled.

12.2.3.11 Internal Coil Heater

The compressor is equied with built-in heating coils designed to heatup the compressor oil cranck case during low outdoor ambient temeratures.
When CCHoutput=1 Coil heating is enabled.
When CCHoutput=0 Coil heating is disabled.

12.3 General Operating Rules

12.3.1 Power up Sequence

After Power up A/C must perform some initialization procedures.

- Thermistors short/disconnect.
- Compressor Driver communication connected and error codes if any.
- Fans connected – check feedback.
- EEPROM power up parameters uploads.
- EEV initialization – zero process.
- ODU-IDU-DMSMP communication check.

12.3.2 Communication with Indoor Unit

12.3.2.1 Communication Failures Definition

12.3.2.1.1 'Bad Communication' fault

The system keeps a balance of a good/bad communication packet ratio. When the ratio becomes high the system enters 'Bad Communication' fault. The system recovers from that fault when the ratio becomes small again.
When in 'Bad Communication' fault, system continues its normal operation and fault code is shown in diagnostics.

12.3.2.1.2 'No Communication' fault

If no legal transmission or no message received for 30 seconds, system enters 'No Communication' fault.
When in 'No Communication' fault, the fault code will be shown in diagnostics. In this case, the system will force the compressor to off.
The system will recover from 'No Communication' fault when counter is below 10 and legal massage is received.

1. For the single split communication channel, whenever there is loose in the communication channel, the ODU unit will be forced to Idle mode.
2. For Multi split communication channel,

IDUs messages	Does DMSMP Message exist?	ODU report 'no-communication	ODU force to Idle
All IDUs Loose comm.	No	Yes	Yes
All IDUs Loose comm.	Yes	No	Yes
Some IDUs loose comm.	Yes	No	No The IDU channel Lost communication will be defined as inactive channel.

12.3.3 System Configuration Test

This test is continuously performed while the system is on:

12.3.3.1 Communication Channel Auto Detection (Single or Multi)

System is continuoesly checking wether it is a single or multi system according its 2 seperate communication lines.

Case	Single split Channel	Multi Split Channel	Fault	Action
1 (Normal)	Detected	Not detected	No Fault	Continue to the next step
2 (Normal)	Not Detected	Detected	No Fault	Continue to the next step
3 (Abnormal)	Not Detected	Not Detected	*'No Communication'*	Present Fault under the HMI. Unit is forced to Idle mode.
4 (Abnormal)	Detected	Detected	*'Mismatch between IDU and ODU models'*	

12.3.3.2 Number of connected IDUs

The number of detected indoors must be equal or less than 5 (*Max_IDU_Number)*, if it is above that number, the system will be forced to Idle and report "*Mismatch between IDU and ODU models*"

12.3.3.3 Model Plug & Indoor Capacity Test

Test	How to check?	Error to report?	System Action (ODU Mode)
Jumper is inserted/DIP is configured	ODU model is 0 (zero).	*"Missing ODU configuration"*	Force to Idle mode.
Jumper/DIP is not defined in the software	ODU model is not defined	*"Undefined ODU model"*	Force to Idle mode
IDU-ODU capacity group mismatch	When ODU model is defined but the capacity group is not allowed.	*"Mismatch between IDU and ODU models "*	Force to Idle mode

The following combinations show the allowed and not allowed capacity group:

ODU Model	Communication channel		Is it allowed capacity group?				
			Indoor Capacity				
			0	1	2	3	4
AB (4HP DCR and CINCO)	Single		No	No	No	No	Yes
	Multi	Com Channel 1	Yes	Yes	No	No	No
		Com Channel 2	Yes	Yes	No	No	No
		Com Channel 3	Yes	Yes	No	No	No
		Com Channel 4	Yes	Yes	No	Yes	Yes
		Com Channel 5	Yes	Yes	No	Yes	Yes

12.3.3.4 Indoor Total Capacity Test

This test is performed only for Multi split units.

The test comes to check the total IDU capacity code to match the outdoor unit capacity.
The capacity groups of the IDU's are translated into capacity codes according to the following table:

Capacity group	Capacity Code
Non Connected unit	0
0	1.0
1	1.5
2	Reserved
3	2
4	3

Total Detected IDU Code (Sum of IDU code)		
Detected IDU units	**Minimum Allowed**	**Maximum Allowed**
1	*MinSumCapCode1*	*MaxSumCapCode1*
2	*MinSumCapCode2*	*MaxSumCapCode2*
3	*MinSumCapCode3*	*MaxSumCapCode3*
4	*MinSumCapCode4*	*MaxSumCapCode4*
5	*MinSumCapCode5*	*MaxSumCapCode5*

Whenever the sum of the IDU code is outside the range the unit will be forced to Idle Mode and report: "*Mismatch between IDU and ODU models*".

12.3.4 Active Unit definition

Indoor unit can be active or inactive. Whenever it is active, it is calculated to the outdoor unit load. Whenever it is inactive, the outdoor unit is NOT calculated to the outdoor unit load.

12.3.5 Temperature Measurements

12.3.5.1 Thermistors default value.

Thermistor	Default value		System Reaction
	COOL	HEAT	
OCT	1°C	1°C	(1)
OAT	43°C	6°C	
CTT	43°C	43°C	Forced compressor to OFF
HST	75°C	75°C	Forced compressor to OFF
OMT	43°C	43°C	Replaced by OCT(1)
RGT	43°C	43°C	
RLT	43°C	43°C	
ICT	43°C	43°C	
RAT	SPT+4°C	SPT-4°C	

Notes:
(1) Whenever both OCT and OMT are faulty the compressor will be forced to OFF.
(2) Thermistor is defined as faulty (shorted/disconnected) if it's faulty for more than 10 seconds continuously. During this time, the system uses the last valid temperature

12.3.5.2 The following thermistor faults are detected by the system:

Thermistor	Thermistor is Disconnected	Thermistor is Shorted
OCT	Temp < -35 °C	Temp > 75 °C
OAT	Temp < -30 °C	Temp > 75 °C
CTT	Temp < -30 °C	Temp > 130 °C
HST	Temp < -30 °C	Temp > 125 °C
OMT	Temp < -30 °C	Temp > 75 °C
RGT	Temp < -30 °C	Temp > 75 °C
RLT	Temp < -30 °C	Temp > 75 °C
ICT	Temp < -30 °C	Temp > 75 °C
RAT	Temp < -30 °C	Temp > 75 °C

12.3.5.3 System operation whenever a thermistor fault occurs

№	Sensor	IDU status	ODU Mode	Type	Status	Report*	Blink**	System Operation
1	OAT	NA	Any	A	Fault	Yes	Yes	Normal, replace reading with default value.
2	OAT	NA	Any	B	Fault	Yes	Yes	
3	OCT	NA	Any	A	Fault	Yes	Yes	Normal, replace reading with default value.
4	OCT	NA	Any	B	Fault	Yes	Yes	
5	CTT	NA	Any	Any	Fault	Yes	Yes	Compressor is stopped.
6	HST	NA	Any	A	Fault	Yes	Yes	Compressor is stopped.
7	HST	NA	Any	B	Fault	Yes	Yes	
8	OMT	NA	Cool	Any	Fault	Yes	Yes	Compressor is stopped.
9	OMT	NA	Heat/Idle	Any	Fault	Yes	Yes	Use the OCT instead. If OCT faulty also – stop compressor.
10	RGT_i/RLT_i	Inactive (Available)	Cool/Heat/ Idle	Any	Fault	Yes	Yes	Normal, replace reading with default value.
11	RGT_i/RLT_i	Inactive (Unavailable)	Cool/Heat/ Idle	Any	No	No	No	Normal, replace reading with default value.
12	RGT_i	Active	Heat	Any	Fault	Yes	Yes	Normal, replace reading with default value.
13	RLT_i	Active	Cool	Any	Fault	Yes	Yes	Normal, replace reading with default value.

*- Report outdoor unit fault to the indoor unit.
**- Indicate fault code with outdoor unit LED's.

12.4 Indoor Unit Control

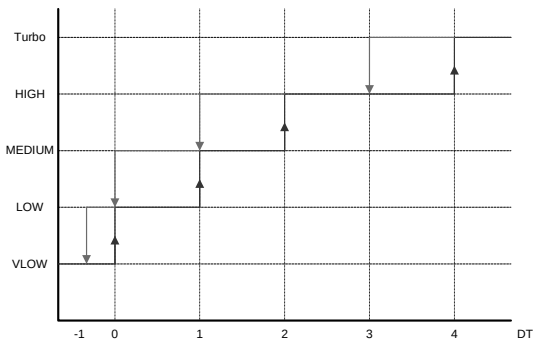
12.4.1 Load calculation

LOAD is calculated according to the difference between actual room temperature and user set point temperature by PI control.
In high/ medium/ low indoor fan user setting, unit will operate fan in selected speed.
In AutoFan user setting, fan speed will be adjusted automatically according to the calculated LOAD.

12.4.2 Indoor Fan Control

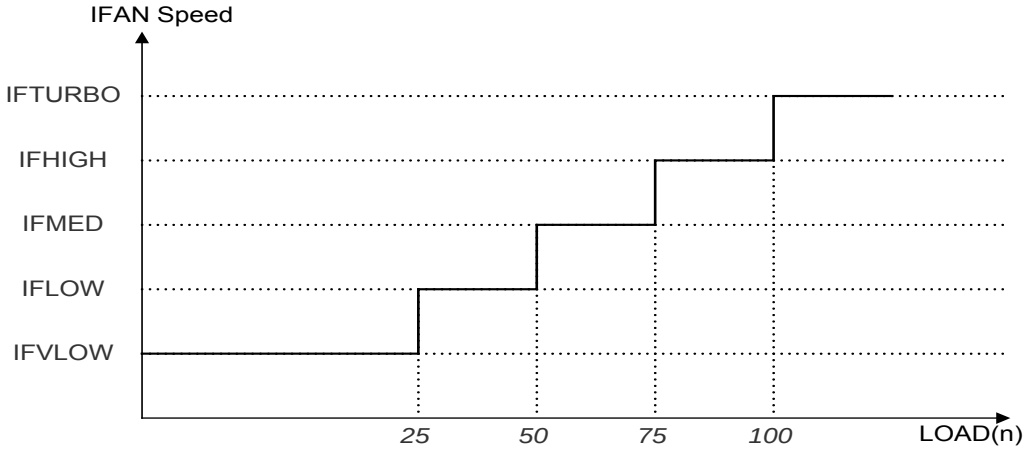
12.4.2.1 Indoor fan control - FAN Mode

- When T/H/M/L speed is set by user, IFAN will work in constant requested speed.
- When Auto-Fan is set by user, IFAN speed will be set according to the following graph:



12.4.2.2 Indoor fan control - Cool Mode

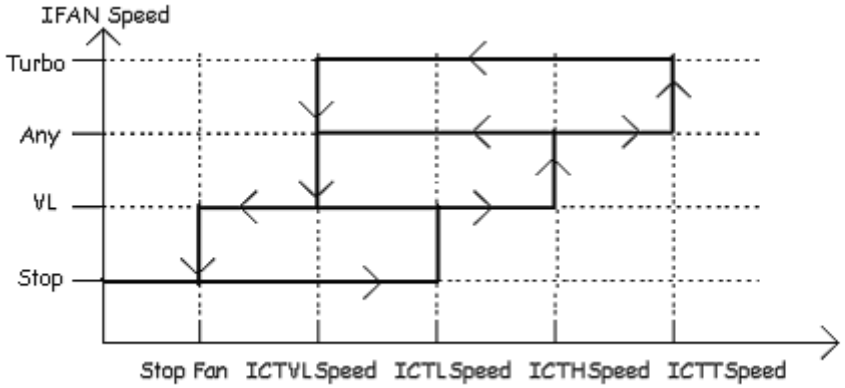
- When T/H/M/L speed is set by user, IFAN will work in constant requested speed.
- When Auto-Fan speed is set by user, IFAN speed will be set according to LOAD(n) as in the following graph:



12.4.2.3 Indoor fan control – Heat Mode

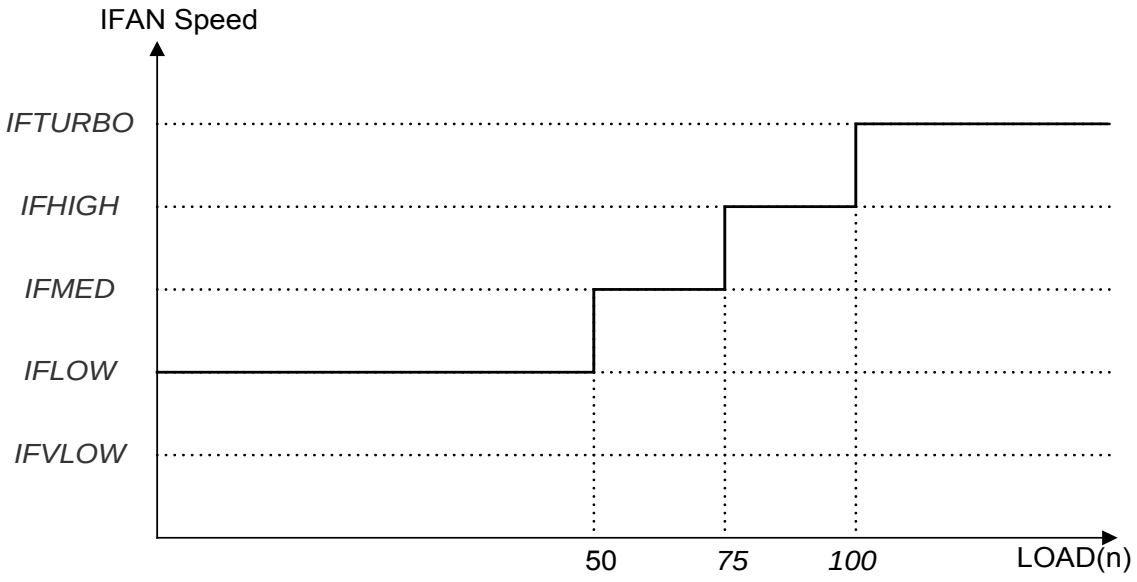
12.4.2.3.1 IFAN Operation in set speed

When in heat mode, including protections and except Deicing, IFAN will be working according to the graph below.



12.4.2.3.2 IFAN Operation in Auto Fan Mode

IFAN speed will be set automatically according to $Load_{(n)}$ by the following graph:



12.4.3 Cooling Mode

12.4.3.1 Cooling Mode – General

a. Mode Definition

Mode: COOL, AUTO (at Cooling)

Temp: Selected desired temperature.

Fan: LOW, MED, HIGH, TURBO, AUTO.

Timer: Any

I-FEEL: ON or OFF

b. Room Temperature, RT, is detected by:
RAT in normal operation, or

RCT (R/C sensor) in I-FEEL mode.

c. Indoor Coil Temp is detected by ICT.

12.4.3.2 Control Functions

a. **COMP** Operation

In general – the operation is set by the NLOAD calculation in indoor unit side.

Other rules are according to section 12.5.1.

b. **OFAN** Operation

In normal operation OFAN operates together with the COMP.

Other rules are according to section12.5.3.

c. **IFAN Operation**

IFAN will operate in ANY speed regardless the ICT or COMP state.

IFAN speed will be determined according to user selection or AUTO-FAN logic (see para. 12.4.2.2)

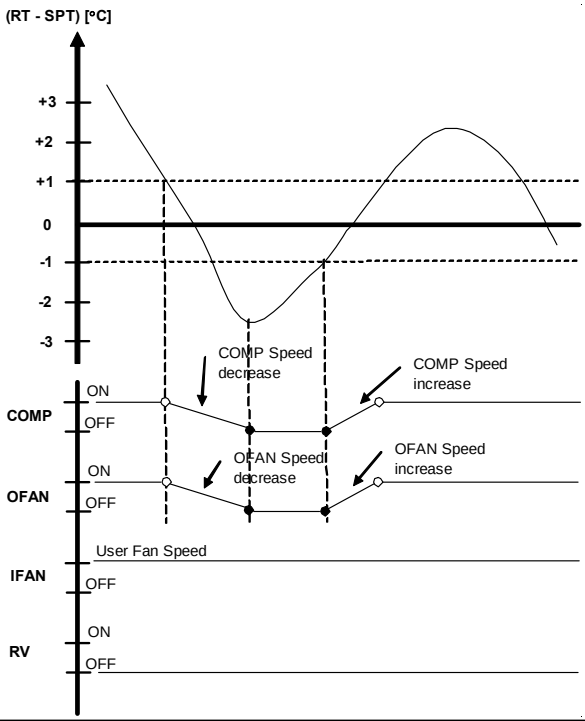
d. **RV** is OFF during COOL mode.

e. **HEATERS** are OFF during COOL mode.

f. **PUMP** operates in cool/dry mode.

12.4.3.3 Sequence Diagrams

Maintaining room temp at desired level by comparing RT and SPT with user defined IFAN speed.



12.4.4 Heating Mode

12.4.4.1 Heating - General

a. Mode Definition

Mode: HEAT, AUTO (at heating)

Temp: Selected desired temperature

Fan: LOW, MED, HIGH, TURBO, AUTO.

Timer: Any

I-FEEL: ON or OFF

b. Room Temperature, RT, is detected by:
RAT in normal operation, or

RCT (R/C sensor) in I-FEEL mode.

c. Indoor Coil Temp is detected by ICT.

12.4.4.2 Control Functions

a. **COMP** Operation

In general – the operation is set by the NLOAD calculation in indoor unit side.
Other rules are according to section 12.5.1.

b. **OFAN** Operation

In normal operation OFAN operates together with the COMP.
Other rules are according to section 12.5.3.

c. **IFAN** operation:-

IFAN will operates according heat mode rules. See section 12.4.2.3.

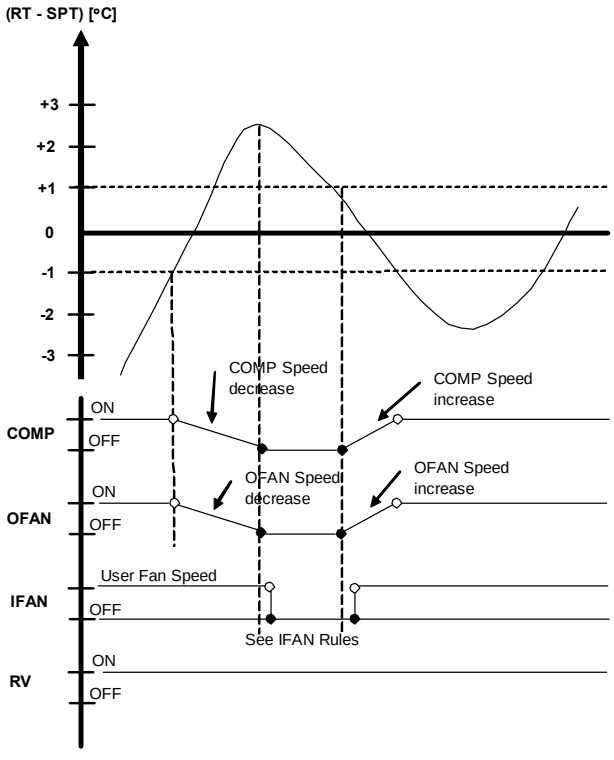
d. **RV** is ON during HEAT mode.

e. **HEATERS** – See section 12.4.9.

f. **PUMP** is OFF during heat mode.

12.4.4.3 Sequence Diagram

Maintains room temp. at desired level by comparing RAT or RCT to SPT.

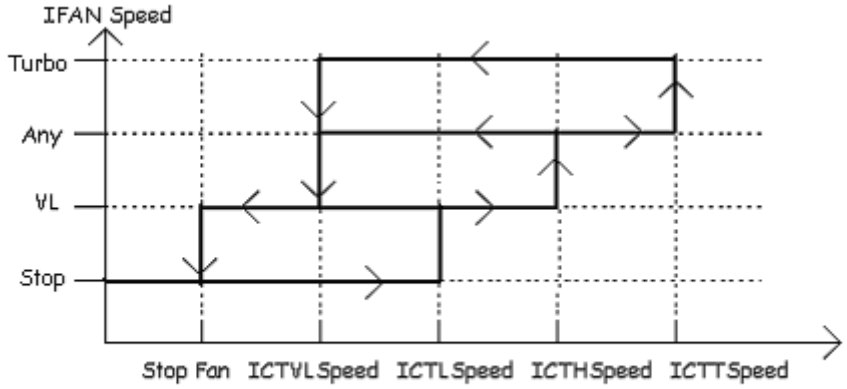


12.4.4.4 Temperature Compensation

A compensation value of 2-4 degrees is reduced from room temperature reading (except when in I-Feel mode), to compensate for temperature difference between high and low areas in the heated room, and for coil heat radiation on room thermistor.
The temperature compensation can be enabled/disabled by closing/opening J2 on the indoor unit controller.
No compensation will be activated in Forced operation modes.

12.4.4.5 Indoor Fan Control in Heat Mode

When in heat mode, including protections and except Deicing, and when the conditions in the table below are fulfilled, IFAN will be working according to the graph below.



12.4.5 Automatic Cooling or Heating

12.4.5.1 Automatic Cooling or Heating - General

a. Mode Definition

Mode:	AUTO
Temp:	Selected desired temperature
Fan:	Any
Timer:	Any
I-FEEL:	ON or OFF

12.4.5.2 Control Functions

a. Switching-temperature between Cooling and Heating is SPT ± 3^{O}C.

b. When the AUTO Mode is started with SPT +/-0 ^{O}C, the unit will not select Auto Heat or Auto Cool mode immediately. Instead, the unit will be in a temporary FAN Mode with IFAN operating at low speed. The proper Auto Heat mode or Auto Cool will be started whenever the RT reaches SPT-1^{O}C or SPT+1^{O}C respectively.

c. Mode change between Auto Heat & Auto Cool Modes is possible only after the COMP has been OFF during the last T minutes.

Mode Change	Time, T
Auto Cool to Auto Heat	3 min
Auto Heat to Auto Cool	4 min

d. When unit is changed form Cool/Dry Mode to Auto Mode, the unit will continue to operate in (Auto) Cool Mode until the conditions for switching from Auto Cool to Auto Heat are satisfied.

e. When unit is changed from Heat Mode to Auto Mode, the unit will continue to operate in (Auto) Heat Mode until the conditions for switching from Auto Heat to Auto Cool are satisfied.

12.4.6 Dry Mode

12.4.6.1 DRY - General

a. Mode Definition

Mode: DRY

Temp: Selected desired temperature

Fan: LOW (automatically selected by software)

Timer: Any

I-FEEL: ON or OFF

12.4.6.2 Control function

a. COMP Operation
In general – the operation is set by the NLOAD calculation in indoor unit side.
Other rules are according to section 12.5.1.

b. OFAN Operation
In normal operation OFAN operates together with the COMP.
Other rules are according to section 12.5.3.

c. IFAN Operation
LOW only.

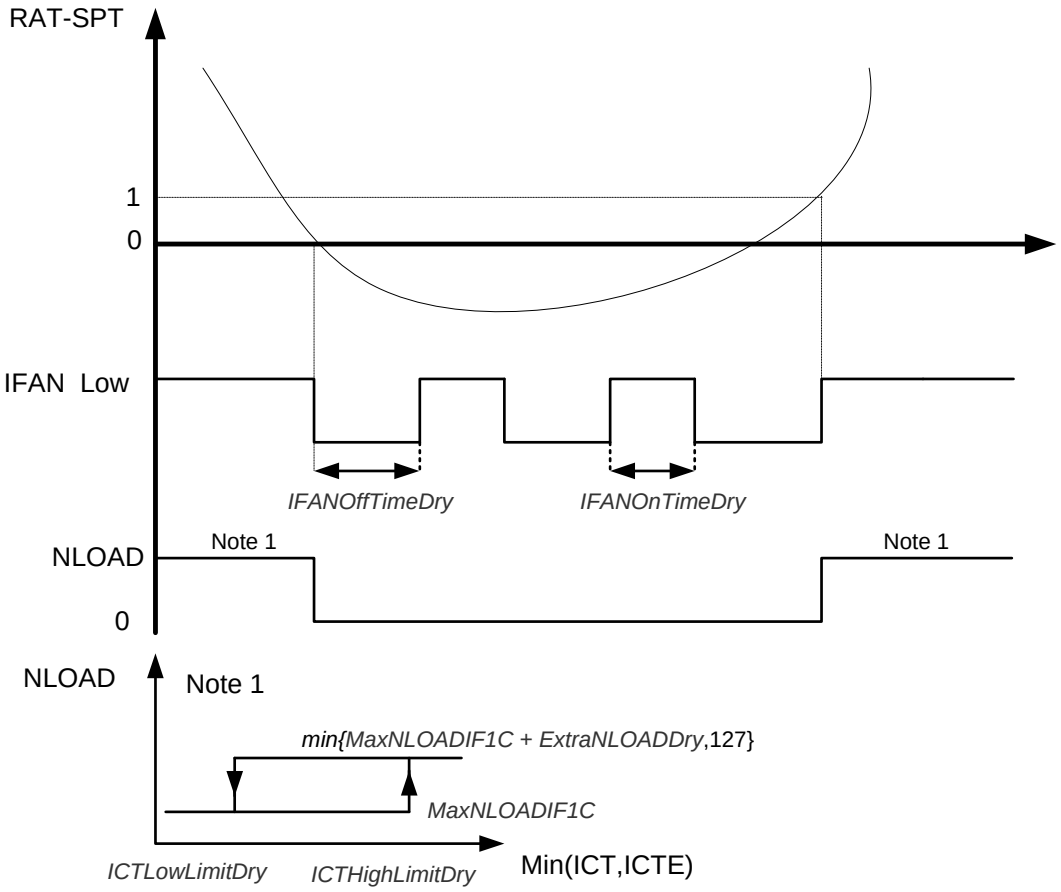
d. RV
RV is in OFF state during DRY mode.

e. HEATERS
HEATERS are in OFF state during DRY mode.

f. Pump
Pump operates in cool/dry mode.

12.4.6.3 Sequence Diagrams

Reduce room humidity with minimum temp. fluctuations by operating in Cool Mode with LOW speed IFAN.



12.4.7 Sleep Mode

12.4.7.1 Sleep Mode - General

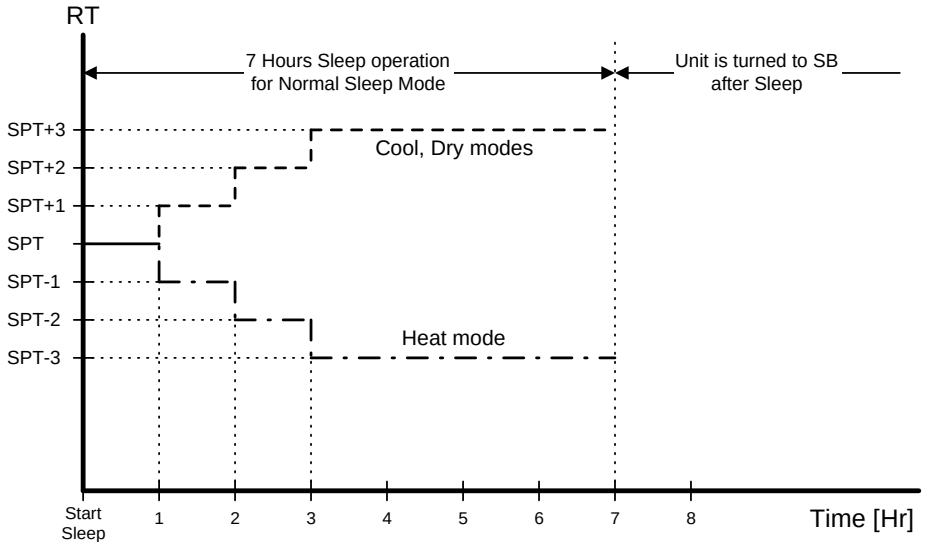
a. Mode Definition

Mode: Any
Temp: Selected desired temperature
IFan: Any
Timer: See below
I-FEEL: ON or OFF

12.4.7.2 Control function

- The Sleep mode is activated by using the SLEEP button on the R/C. In Sleep Mode, the unit will automatically adjust the SPT to turn up/down the room temperature (RT) gradually to provide maximum comfort for the sleeping user.
- Sleep is treated as TIMER function. Therefore, the TIMER LED is activated similar to TIMER function.
- In COOL, AUTO COOL or DRY modes, the SPT adjustment is positive (from 0 to +3oC).
- In HEAT or AUTO HEAT modes, the SPT adjustment is negative (from 0 to -3oC).
- In other modes, there is no SPT adjustment.
- The SPT adjustment is cancelled when the Sleep mode is cancelled.
- If OFF-timer is active, the unit may go to SB before or after 7 hours of sleep operation.

12.4.7.3 Sequence Diagrams



12.4.8 Forced Operation

Forced operation is set by the mode button on the Display Board and allows to start, stop and operate in Cooling or Heating, in pre-set temperature according to the following table:

Forced operation Mode	Pre-set Temperature
Cooling	20°C
Heating	28°C

NOTES

- While under the forced operation, the temperature compensation is disabled.
- The IFAN is always set to Autofan Speed in forced operation.

12.4.9 Indoor Units Operation when Indoor Unit Mode is Different than Outdoor Unit Mode

- Open louvers according to user selection.
- Indoor fan is forced to OFF.

12.4.10 Heating Element Control

- Heating element can be turn on if high LOAD is more then 80% and Indoor Coil temperature is less then 45°C.
- The heating element will be off when LOAD is less then 50% OR if Indoor Coil temperature is more then 50°C.

12.4.11 Ioniser Control

LEX Family - Ioniser is on when unit is on AND indoor fan is on AND Ioniser power switch (on Ioniser) is on.

12.4.12 Electro Static Filter (ESF) Control

LEX Family - ESF is on when ESF switch is on, Safety switch is pressed, unit is on, AND indoor fan is on.

12.4.13 Indoor Unit Dry Contact

Indoor unit Dry contact has two alternative functions that are selected by J9 (Dip-Switch).

Status	Function	Contact = Open	Contact = Short
J9 = Open	Presence Detector Connection	No action – normal operation	Forced to STBY
J9 = Short	Power shedding function	No limit	Limit NLOAD

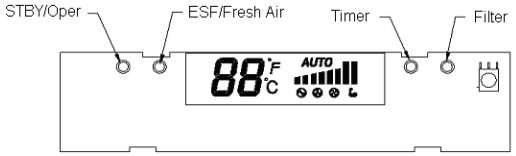
"Presence Detector" feature in the indoor unit is done for cases that external SB (Stand-By) is required via a presence detector switch, window closed detector, etc.

12.4.14 On Unit Controls and Indicators

12.4.14.1 All Models Except for Floor/Ceiling model

STAND BY INDICATOR	Lights up when the Air Conditioner is connected to power and ready to receive the R/C commands
PERATION INDICATOR	Lights up during operation. Blinks for 300 msec to announce that a R/C infrared signal has been received and stored. Blinks continuously during protections (according to the relevant spec section).
TIMER INDICATOR	Lights up during Timer and Sleep operation.
FILTER INDICATOR	Lights up when Air Filter needs to be cleaned.
COOLING INDICATOR	Lights up when system is switched to Cool Mode by using the Mode Switch on the unit.
HEATING INDICATOR	Lights up when system is switched Heat Mode by using the Mode Switch on the unit.
Mode SWITCH (COOL/HEAT/OFF)	Every short pressing , the next operation mode is selected, in this order : SB → Cool Mode → Heat Mode → SB → … In long pressing system enters diagnostic mode.
RESET / FILTER SWITCH	For short pressing: When Filter LED is on - turn off the FILTER INDICATOR after a clean filter has been reinstalled. When Filter LED is off – enable/disable the buzzer announcer, if selected.

12.4.14.2 LCD Display



	STBY	Cool	Heat	Auto	Fan	Dry
88	OFF	SPT	SPT	SPT	SPT	SPT
°C	OFF	ON	ON	ON	ON	ON
°F	OFF	OFF	OFF	OFF	OFF	OFF
(Low)	OFF	User setting IFAN speed	User setting IFAN speed	User setting IFAN speed	User setting IFAN speed	User setting IFAN speed
(Med)	OFF					
(High)	OFF					
(Turbo)	OFF					
AUTO (Auto)	OFF					
Backlight(red)	OFF	OFF	ON	ON	ON	OFF
Backlight(green)	OFF	ON	OFF	ON	ON	ON

12.4.14.3 Floor/Ceiling Model

STANDBY INDICATOR	Lights up when the Air Conditioner is connected to power and is ready for operation
OPERATE INDICATOR	1. Lights up during operation. 2. Blinks for 300 msec to announce that a R/C infrared signal has been received and stored. 3. Blinks continuously during protections (according to the relevant spec section).
TIMER INDICATOR	Lights up during Timer and Sleep operation.
FILTER INDICATOR	1. Lights up when Air Filter needs to be cleaned. 2. Blinks during Water Over Flow in PXD models. (Cf. Sect. 7.3)
COOLING INDICATOR	Lights up when system is switched to Cool Mode by using the Mode Switch on the unit.
HEATING INDICATOR	Lights up when system is switched Heat Mode by using the Mode Switch on the unit.
FAN MODE INDICATOR	Lights up in Fan Mode activated by local switches.
FAN SPEED INDICATORS	L -- Lights up when IFAN setting is Low. M -- Lights up when IFAN setting is Medium. H -- Lights up when IFAN setting is High. A -- Lights up when IFAN setting is Auto.
TEMP. SETTING INDICATORS	Each one of the seven indicators indicates the following SPT: 18, 20, 22, 24, 26, 28, 30 [°c]. The odd number temperatures are indicated by turning on the two adjacent indicators.
FAN SPEED BUTTON	Press this button to change the speed of the IFAN. Each pressing change the speed in the sequence of: ... L → M → H → Auto → L → ...
TEMP. SETTING UP BUTTON	Pressing this button increases the SPT by 1°c. Note: The Max SPT is 30°c.
TEMP. SETTING DOWN BUTTON	Pressing this button decreases the SPT by 1°c. Note: The Min SPT is 18°c.
MODE BUTTON	Every short pressing , the next operation mode is selected, in this order :SB → Cool Mode → Heat Mode → SB → … In long pressing system enters diagnostic mode.
POWER BUTTON	Toggle the unit between OPER & STBY modes.
RESET / FILTER BUTTON	For short pressing: When Filter LED is on - turn off the FILTER INDICATOR after a clean filter has been reinstalled. When Filter LED is off – enable/disable the buzzer announcer, if selected. In long pressing system enters set up mode (if in SB).

12.5 Run Mode

Run mode is the default operation mode of the system. This is the standard operation mode that is active in field application (at customer site).
System can go from run mode to other operation modes through keyboard or serial ports.

12.5.1 Mode Setting

12.5.1.1 General Rules

Thermal mode defines the ODU operation mode. There are three possible operation modes:

1. **STBY** – Standby mode
2. **COOL** - the unit operate at cooling cycle
3. **HEAT** - the unit operates at heat pump cycle (deicer will be treated as sub-mode of heat mode in the thermal Mode setting).

The last mode will be stored in the EEPROM, and it will be restored on system power up, where the default value is STBY.

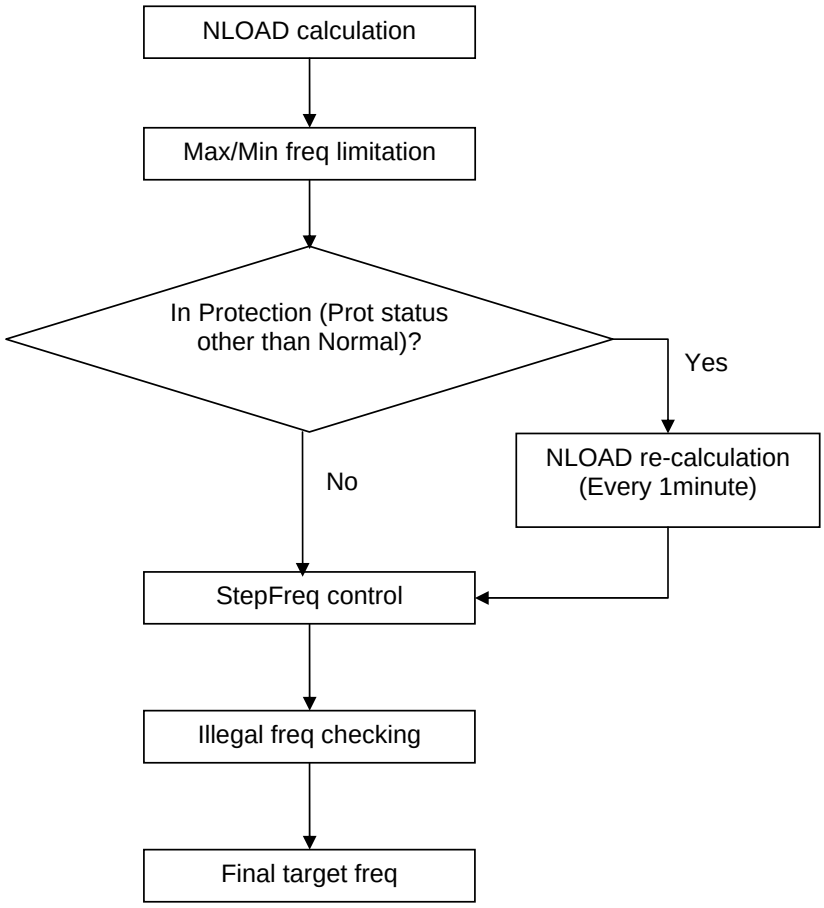
12.5.1.2 ODU Mode Definition

The ODU define the system operation mode according these methods (*ThermalModeSetting*):

1. First request priority (*Option 0*).
   The first IDU which requests different mode than STBY mode will set the new operation mode. The mode will change once all the units exit the current operation mode.
2. Priority unit (*Option 1-5*).
   If an IDU is defined as a priority unit, the operational mode will be defined according to that unit request, unless the unit is at STBY mode.
3. SB Input
   The ODU will change mode between COOL/HEAT and IDLE according to the SB dry contact input.

12.5.2 Compressor Speed Control

The following diagram describes the sequence of the Target Frequency calculations:



12.5.2.1 Compressor Min On/Off time

Compressor minimum ON and OFF time is 3 minutes except during protections.

12.5.2.2 Compressor Startup

When started, compressor speed reaches certain level (usually 30÷40 RPS) and will not go below that during the first 5 minutes except when compressor is forced OFF.

12.5.2.3 Compressor start up fail

If the compressor does not succeed to complete the startup procedure, it will report a compressor lock fault code. It than retries the startup procedure every 10 seconds and up to 3 minutes than it wait 3 minutes before starting the next compressor startup sequence.

12.5.2.4 Compressor operation while OFAN Error

In case an OFAN error a cured for 10 continues seconds and the compressor is on, the compressor will be set to OFF until OFAN error will recover.

12.5.2.5 Speed Change Limitations

Acceleration and deceleration will be 1 RPS/sec.

12.5.2.6 Speed Step Limitations

The compressor speed cannot go below *Step1Freq* or above *Step2Freq* during 3 continuous minutes once after the compressor starts up. The speed cannot go higher than *Step3Freq* RPS during the first 10 minutes of continues compressor operation.

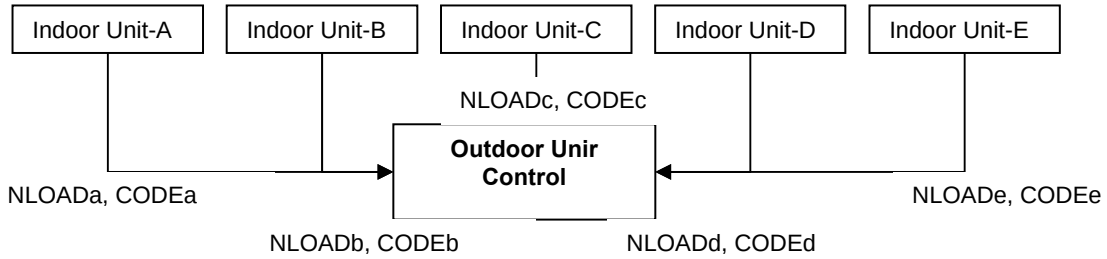
12.5.2.7 Illegal frequencies

Illegal Frequencies are values that the unit is not allowed to be working at. The frequencies and values within tolerance of ±2 Hz are not allowed.

12.5.2.8 Compressor shutdown Cases

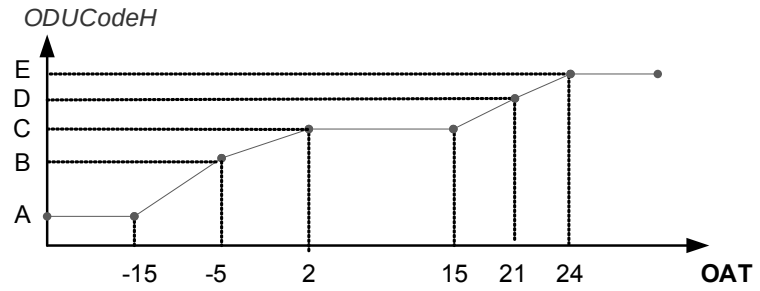
№	Shutdown Reason
1	ODU NLOAD=0 (or IDU protections)
2	IDU Shutdown (idle)
3	Deicing (both when going from heat to cool and from cool to heat)
4	ODU Protections
5	Sensor faulty (CTT, HST or OCT+OMT)
6	HPS protection
7	LPS protection
8	OFAN-ERR (Up and Down)

12.5.2.9 Outdoor Unit NLOAD calculation



Total load = ΣCode * NLOAD/ODU CODE

ODUCodeH setting:



Point (Set by the graph above)	*ODUCodeH*
A	2.0
B	2.5
C (or OAT faulty)	3.5
D	4.0
E	4.5

ODUCodeC setting:

	ODUCodeC
ALL	3.0

12.5.3 EEV Control

12.5.3.1 EEV General Rules

The EEV is controlled to keep the discharge superheat temperature within preset control values.

12.5.3.2 EEV initialization procedure

After power up, the EEVs perform initialization procedure while it closed completely and reopened to predefined position.

12.5.3.3 Balance time

During the first 5 minutes after SB the correction is not calculated. After that the correction value is updated every EEVCVTConst seconds.

12.5.3.4 Operation Range

The EEV operation range is defined according to the operation mode as following:

ODU Mode	EEV1/EEV2/EEV3/EEV4/EEV5		Main EEV
	Active IDU	Inactive IDU	
COOL	50-480	0	0
HEAT	50-480	90-120	
De-ice	160		
Cool/Heat/Idle	400		

12.5.3.5 EEV initial value determination (EEVOLi)

EEVOLi = EEVCpctyCrct + EEVFreqCrct + EEVOATCrct

The EEV initial value (open loop) is determined according to the operation mode, the actual frequency and outdoor conditions. The values are determined according to the predefined parameters.

12.5.3.6 EEV correction definition

The following table describes the closed loop control type (EEV correction):

Mode	Indoor	
	Active	Inactive
Cool	Indoor Super Heat Control AND Discharge Super Heat Control.	NA
Heat	Indoor Sub-cooling AND Discharge Super Heat Control.	Flow Balance

12.5.3.7 Accumulative correction value storage

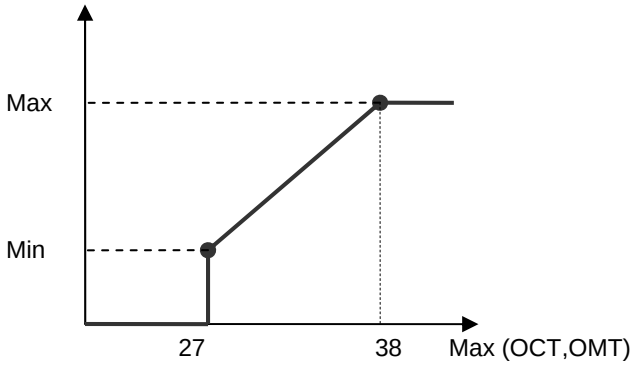
For each combination of active IDUs, the accumulated EEV correction value (for each IDU) will be stored in the memory. Default correction values after power up are zero.

12.5.4 Outdoor Fan Speed Control

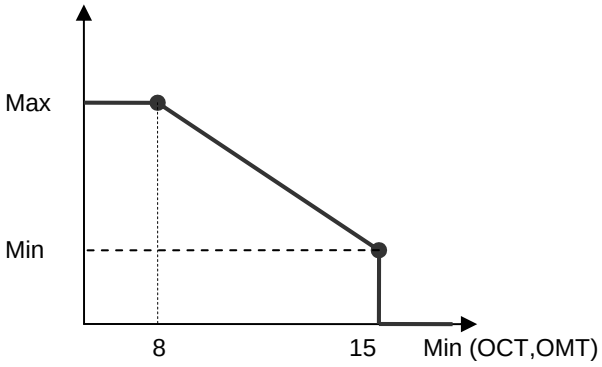
12.5.4.1 General Rules

The OFAN operation keeps the outdoor heat exchanger temperature within predefined values by increasing or reducing the OFAN speed. Whenever the OFAN speed is abnormal, the OMT and OCT sensors need to be checked.

OFAN Speed Cool mode



OFAN Speed Heat mode



12.5.4.2 Night mode

During night mode, the OFAN and the compressor will be limited to lower speeds.

12.5.4.3 Behavior when there is a failure in OFAN

Whenever OFAN fault occurs the compressor will be stopped immediately.

12.5.4.4 Protection Behavior

OFAN will enter protection speed according to CTT / HST / OMT protection level. Whenever one of these protections is entered, OFAN will also speed up/down (Cool/heat) accordingly.

12.6 Thermodynamic Protections

12.6.1 Protection level definition

Five protection levels are defined:
Normal – No protection status.
Stop-Rise (SR*)* – Compressor not allowed raise speed.
D1 - Compressor speed reduced.
D2 - Compressor speed reduced rapidly.
Stop-Compressor (SC*)* – Compressor stops.

12.6.2 IDU Protections

ICT Value		ICT Trend				
Indoor Coil Defrost Protection	**Indoor Coil Over Heating Protection**	**Fast Increasing**	**Increasing**	**No change**	**Decreasing**	**Fast Decreasing**
ICT < -2	ICT > 62	SC	SC	SC	SC	SC
-2 ≤ ICT < 0	60 < ICT ≤ 62	D1	D1	D2	D2	D2
0 ≤ ICT < 2	55 < ICT ≤ 60	SR	SR	D1	D2	D2
2 ≤ ICT < 4	53 < ICT ≤ 55	SR	SR	SR	D1	D2
4 ≤ ICT < 6	51 < ICT ≤ 53	Normal	Normal	SR	SR	D1
6 ≤ ICT < 8	49 < ICT ≤ 51	Normal	Normal	Normal	SR	SR
8 ≤ ICT	ICT ≤ 49	Normal				

12.6.3 ODU Protections

There are 5 ODU protections:

- Compressor overheating
- Heat sink overheating
- AC overcurrent
- DC Overcurrent
- Outdoor Coil Overheating

Operation logic of all protections is the same. The controlled input (CTT, HST, ACC, DCC,OMT) is controlled by changing the protection level using the fuzzy logic algorithm according the input level and the change rate.
The following table summarizes the basic levels of each protection:

Protection level	**Compressor Overheat (CTTOH1-4)**	**Heat Sink Overheat (HSTOH1-5)**	**Compressor AC Overcurrent (CCROC1-4)**	**Compressor DC Overcurrent (DCCOC1-4)**	**Outdoor Coil Overheating (OMTOH1-5)**
SC	95	80	19.0	12.6	66
D2	92	78	18.2	12.2	64
D1	90	75	17.6	12.8	62
SR	87	73	17.0	12.4	60
Normal		70			58

There are two sets of ACC values, the selection of the values are set according to the state of the Power-Shed dry contact input.
Power-Shed input open → ACC
Power-Shed input short → PSOC

12.6.3.1 Total Protection Level Definition

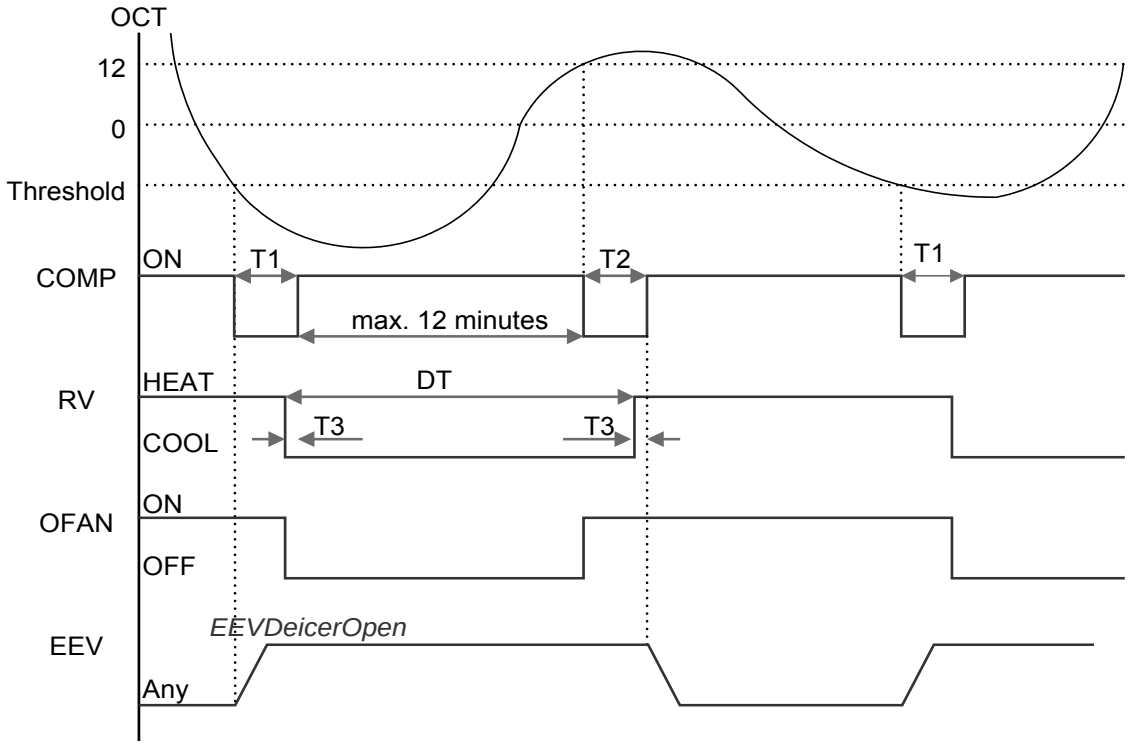
The total protection level is defined by the higher level of protection received.

12.6.4 Deicing

12.6.4.1 Deicing Starting Conditions
Deicing operation will start when either one of the following conditions exist:
Case 1: OCT is 8 degree lower then the ambiant temp and the minimum time from the last deicer is passed.
Case 2: OCT is 12 degree lower then the ambiant temp and 30 minutes from the last deicer wa passed.

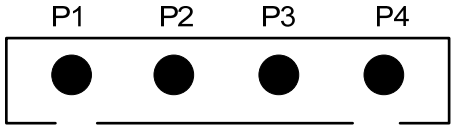
Deicing interval time when compressor is first started in heat mode, is 10 minutes if OCT < -2, and is 40 minutes in other cases.
Deicing interval time is changed (increased/ decreased in 10 minutes steps) as a function of deicing time.
In case one of the thermistors is bad the deicer will initiate in predefined intervals.
Deicer may accure also when the unit switch to stanby and the OCT is 8 degree lower then ambiant temperature

12.6.4.2 Deicing Protection Procedure



T1 = T2 = 36 seconds, T3 = 6 seconds

12.6.5 Condensate Water over Flow Protection



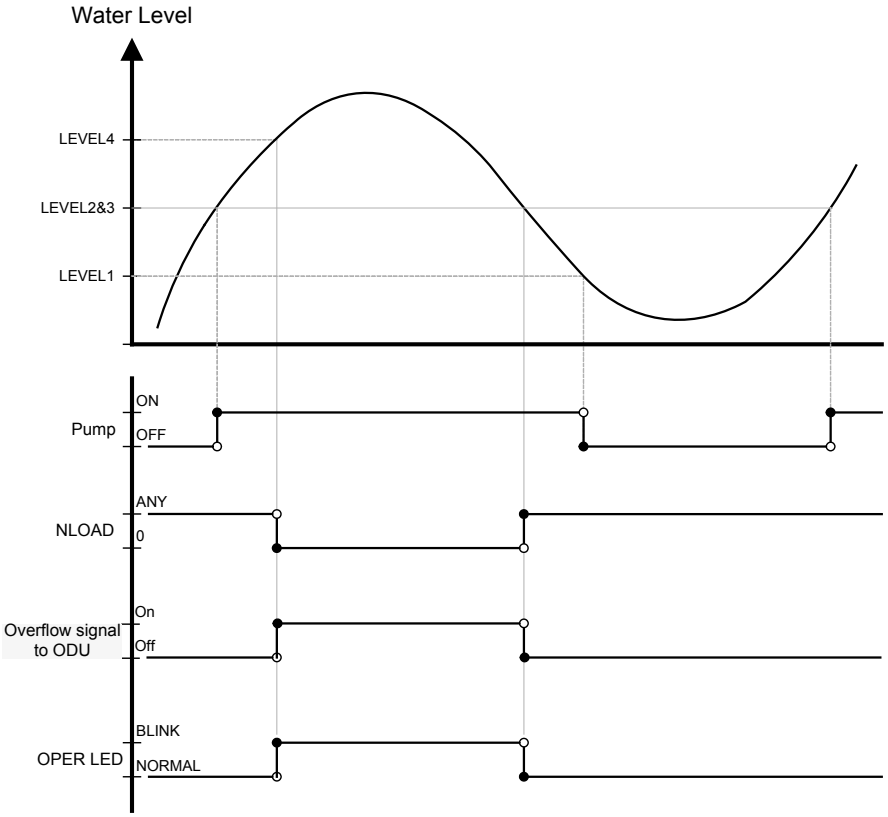
Level Connector Top View

Each of the pins P1, P2, P3 can have two options:
1 – When it is shorted with P4
0 – When it is not shorted to P4

12.6.5.1 3 Level Logic

Used in Floor/Ceiling models.

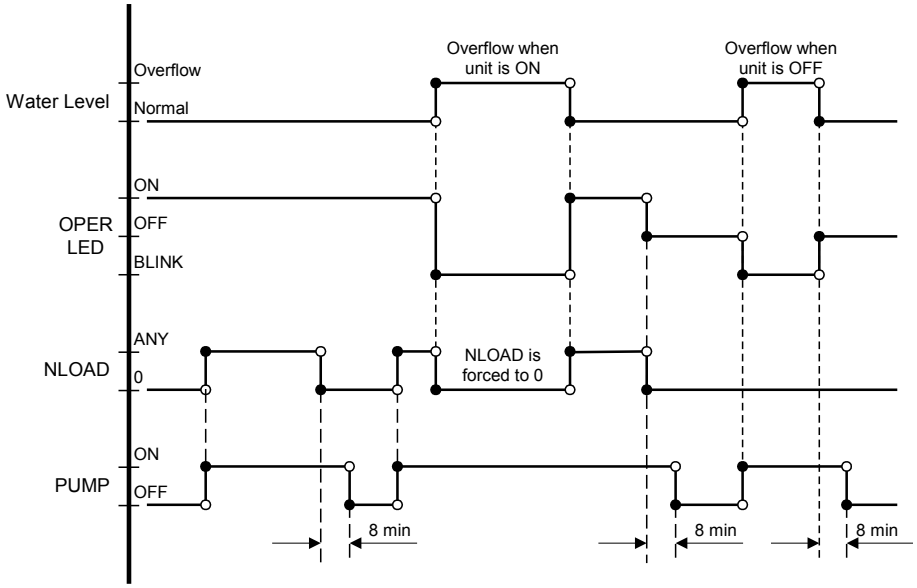
P2	P3	Level
0	0	L0
1	0	L1
1	1	L2&3
0	1	L4



12.6.5.2 1 Level Logic

Used in all models except for Floor/Ceiling models.

P2	P3	Level
Don't care	1	Normal
Don't care	0	Overflow



12.6.6 High/Low Pressure Protection

Whenever high or low pressure accures in the system which extend beind the system pre-defined limits, the high and low pressure switchs turns on (short) and stops the compressor until these limits are redrawn.
Fault code error 8 (HPS) or 9 (LPS) will be shown until compressor will resume operation.

12.7 Installation Test Mode

12.7.1 Test Objectives

- Find tube-communication wires mismatch.
- Instruct the technician to match the tubes to the communication wires.
- Find EEV or tubing problems.

12.7.2 Test Concept

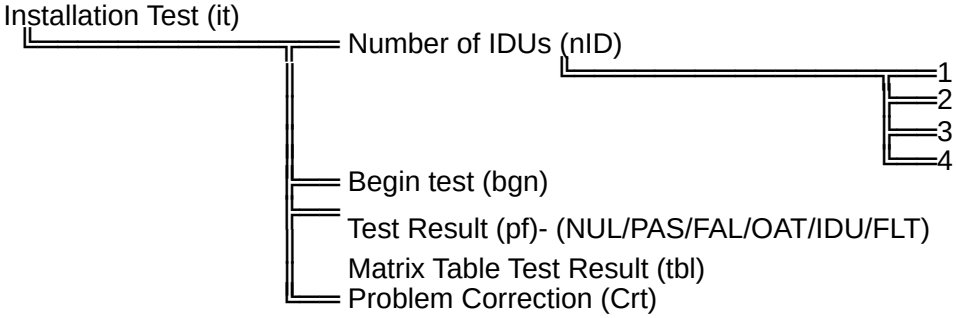
- The unit will open each EEV separately in cooling mode.
- Detect a temperature drop on the indoor unit.
- Based on the temperature drop, the system can match the tube to the indoor unit.

12.7.3 Test Rules

Before starting the installation/technician test, make sure for the following:

1. No indoor communication channel is connected to non existing tube channel.
2. The number of the connected/installed indoor unit is set properly.
3. All the EEVs are connected properly to the right EEV channels.
4. No mix between the indoor unit's tubes, each indoor unit must have its own tubes connected properly to the outdoor unit.
   If the rules above are not respected, the test results will make no sense.

12.7.4 Installation test menu

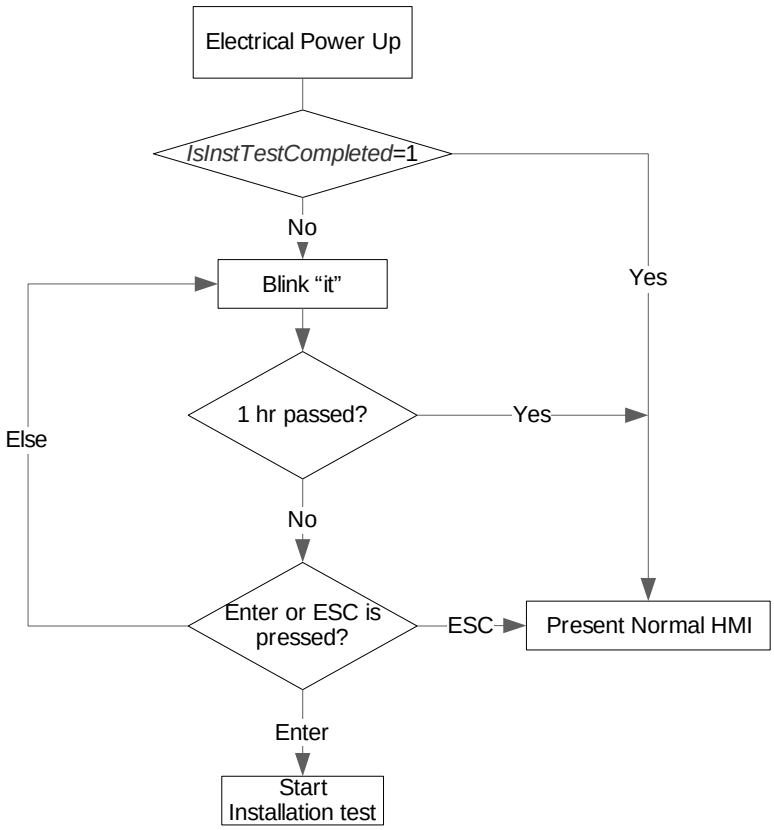


12.7.5 How to do installation test

1. While the power is off, set the following labels on the wires:

On unit Label	C_A	C_B	C_C	C_D
Wire name (Marked by technician)	1	2	3	4
For non connected indoor units, there is no need for label.				

2. Set the number of the connected/installed indoor units.
   Elect 'nID' number under 'it', the selected number blinks. The factory setting value is 4.
3. Enter installation test (by either of the following):
   a. Select 'bgn' under 'it' menu.
   b. According to the following:



4. During the test, the unit will show count down counter (in minutes). The test maximum time is 20 minutes.
5. When the test is finished, the system will show the test result, pass or fail.
6. You can scroll the menu to observe:
    a. Observe the matrix result
    b. Guide for problem correction.
7. For fixing problem, copy on paper the results displayed results, power off the unit, and then fix the problem accordingly. Do not do any wire fixing under power!

Note:

You can exit the installation test any moment by pressing Esc for 5 seconds.
When exiting the test, the system will still keep the latest result from the previous test.

12.7.8 Faults during the test

Upon the following the system will terminate installation test:

Fault (display)	Reasons
'OAT' blink	Outdoor ambient temperature is too low, cannot run installation test.
'IDU' blink	The selected number of the installed indoor units by the technician does not match the number of indoor units detected by the system.
Display indoor or outdoor fault as in diagnostics	Check indoor and outdoor diagnostics. ICT disconnected will be tested during the first 3 minutes of installation test.

Note: When the system terminates the tests due to the problem above, the matrix results will present partial test.

How to interpret the results (pf sub menu):

Test Result (pf)	Interpretation
NUL	The test has never been done before.
PAS	The test is pass
FAL	The test is fail
OAT	Outdoor air temperature is lower than 5 degrees. The installation test cannot be done.
IDU	The selected number of the installed indoor units by the technician does not match the number of indoor units detected by the system.
FLT	IDU or ODU fault

12.7.9 Matrix Table Test Result (tbl) & Problem Correction (Crt)

The technician has to use labels on the indoor wires connected to the outdoor

On unit Label	C_A	C_B	C_C	C_D
x=Wire name (Marked by technician)	1	2	3	4
For non connected indoor units, there is no need for label.				

The result is presented in the following way:

Present for 2 sec	Present for 2 Sec.	Interpretation
x--:	**Cz**	**'X'** is the wire name (1,2,3,4) **'z'** is the communication channel (A,b,c,d) **'x--:Cz'** is move wire 'x' to communication channel Cz
Ey-:	**W**	**'y'** is the EEV channel name (A,b,c,d) **'w'** can be: 1. 'c' is closed 2. 'o' is open 3. 'oc' is either close or open.
x--:	**C_**	**'x'** is the wire name (1,2,3,4) **'C_'** is unknown communication channel. **'x--:C_'** is the system does not know where to move wire 'x'.

Possible reasons for 'o' and 'c':

Term	Possible reasons
'c'	• Clogged EEV • EEV Coil problem • EEV driver problem • Clogged indoor unit or part of it. • Problem in ICT sensor • Extremely high load at the indoor side
'o'	• Valve always open • EEV coil problem • Driver Problem

Examples:

#	Problem Correction (Crt)		Problem Correction (Crt)	
	HMI Display	**Technician Interpretation**	**HMI Display**	**Technician Interpretation**
1,2	2--:Cb	Keep wire 2 on communication channel C_B	1--:CA	Keep wire 1 inside communication channel C_A
	3--:Cc	Keep Wire 3 on communication channel C_C	2--:Cb	Keep wire 2 inside communication channel C_B
	1--:Cd	Move wire 1 to communication channel C_D	3--:Cc	Keep wire 3 inside communication channel C_C
	4--:CA	Move Wire 4 to communication channel C_A	4--:Cd	Keep wire 4 inside communication channel C_D
3,4	**HMI Display**	**Technician Interpretation**	**HMI Display**	**Technician Interpretation**
	1--:Cb	Move wire 1 to communication channel C_B	4--:Cd	Keep wire 4 to communication channel C_D
	2--:CA	Move Wire 2 to communication channel C_A	1--:Cb	Move wire 1 to communication channel C_B
			2--:CA	Move wire 2 to communication channel C_A
5,6	**HMI Display**	**Technician Interpretation**	**HMI Display**	**Technician Interpretation**
	4--:Cd	Keep wire 4 in communication channel C_D	1--:Cd	Move wire 1 to communication channel Cd
	1--:Cb	Move wire 1 to communication channel C_B	2--:Cc	Move wire 2 to communication channel Cc
	2--:Cc	Move wire 2 to communication channel C_C	3--:C_	Do not know where to put wire 3
	4--:CA	Move wire 3 to communication channel C_A	4--:C_	Do not know where to put wire 4
	EA--:o	EEV of channel A is always open	**EA**-:o	EEV of channel A is always open
			Eb--:o	EEV of channel B is always open
7,8	**HMI Display**	**Technician Interpretation**	**HMI Display**	**Technician Interpretation**
	1--:CA	Keep wire 1 in communication channel CA	2--:Cc	Move wire 2 to communication channel Cc
	2--:Cb	Keep wire 2 to communication channel Cb	3--:CA	Move wire 3 to communication channel CA
	3--:Cd	Move wire 3 to communication channel Cd	1--:C_	Do not know where to put wire 1
	4--:Cc	Move wire 4 to communication channel Cc	4--:C_	Do not know where to put wire 4
	Ec--:c	EEV of channel C is always close	**Eb**-:c	EEV of channel B is always close
			Ed-:c	EEV of channel D is always close
9,10	**HMI Display**	**Technician Interpretation**	**HMI Display**	**Technician Interpretation**
	4--:Cd	Keep wire 4 to communication channel Cd	3--:**Cc**	Keep wire 3 in communication channel Cc
	2--:Cc	Move wire 2 to communication channel Cc	4--:**Cd**	Keep wire 4 in communication channel Cd
	1--:C_	Do not know where to put wire 1	1--:C**A**	Move wire 1 in communication channel CA
	3--:C_	Do not know where to put wire 3	EA-:O	EEV in channel A is always open
	EA-:Oc	EEV in channel A can be open or close		
	EB-:Oc	EEV of channel B can be open or close		

12.7.10 Matrix Table Test Result (tbl)

		IDU channels on the DMSMP			
		Channel1 (j=1)	Channel2 (j=2)	Channel3 (j=3)	Channel4 (j=4)
EEV channels on the DMSMP	EEV1 (i=1)	X_1=T/F/N/C	Y_1=T/F/N/C	Z_1=T/F/N/C	W_1=T/F/N/C
	EEV2 (i=2)	X_2=T/F/N/C	Y_2=T/F/N/C	Z_2=T/F/N/C	W_2=T/F/N/C
	EEV3 (i=3)	X_3=T/F/N/C	Y_3=T/F/N/C	Z_3=T/F/N/C	W_3=T/F/N/C
	EEV4 (i=4)	X_4=T/F/N/C	Y_4=T/F/N/C	Z_4=T/F/N/C	W_4=T/F/N/C

Stored Matrix Type [Rows, Column]	How to present?
2 x 2	Repeat: r1(keep 2 sec)→ X1Y1 (keep 2 sec)
	Repeat: r2 (keep 2 sec) → X2Y2 → (keep 2 sec)
3 x 3	Repeat: r1 (keep 2 sec) → X1Y1Z1 (keep 2 sec)
	Repeat: r2 (keep 2 sec) → X2Y2Z2 (keep 2 sec)
	Repeat: r3 (keep 2 sec) → X3Y3Z3 (keep 2 sec)
4 x 4	Repeat: r1 (keep 2 sec) → X1Y1Z1 (keep 2 sec) → W1 (keep 2 sec)
	Repeat: r2 (keep 2 sec) → X2Y2Z2 (keep 2 sec) → W2 (keep 2 sec)
	Repeat: r3 (keep 2 sec) → X3Y3Z3 (keep 2 sec) → W3 (keep 2 sec)
	Repeat: r4 (keep 2 sec) → X4Y4Z4 (keep 2 sec) → W4 (keep 2 sec)

NOTE: SCROLLING BETWEEN R1, R2, R3, AND R4 IS DONE THROUGH THE 'UP' AND 'DOWN' BUTTONS

DEFINITIONS

Term	Definition
'F'	• Clogged EEV • EEV Coil problem • EEV driver problem • Clogged indoor unit or part of it. • Problem in ICT sensor • Extremely high load at the indoor side
'T'	• Valve always open • EEV coil problem • Driver Problem
C	Non detected channel
N	Null- never done before

12.8 Technician Test Mode

This test is aimed for the technicians to check the system under a preset compressor and outdoor fan values while the expansion valves will function according to the normal running mode.

12.8.1 Entering technician mode

- This mode is entered through the outdoor unit using the HMI (refer to user interface section).
- It can be selected either for cool or heat.
- Technician test is not possible to enter during deicer.

12.8.2 Technician mode procedure

- All the connected indoor units will enter technician test at high indoor fan speed.
- The outdoor unit will be working normally (according to the run mode control logic) except the following changes:
  - The dry contacts inputs will be ignored.
  - Protections will be operative for stop compressor.
  - The compressor and the outdoor fan will be working in target preset values according to the number and size of IDUs.

12.8.3 Exiting technician mode

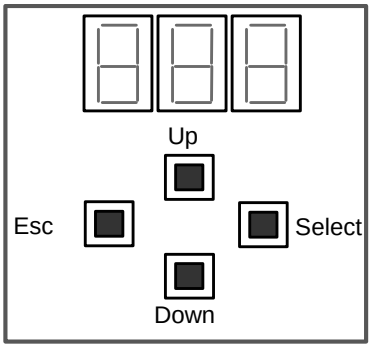
Technician mode will be exited either when:

- Escaping by the HMI (exiting the ttC or ttH menus)
- 60 minutes are passed from entering

12.9 User Interface

12.9.1 User interface description

- The user interface uses three 7 segments, and 4 keys.
- Keys, The 4 keys are:
  - Scroll - used to scroll between options (up and down)
  - Select - use to select an option
  - Escape - Will go up one level in the menu
- The user interface concept is Tree menus.
- Active selection or status will be indicated by a dot at the right side of the third digit.



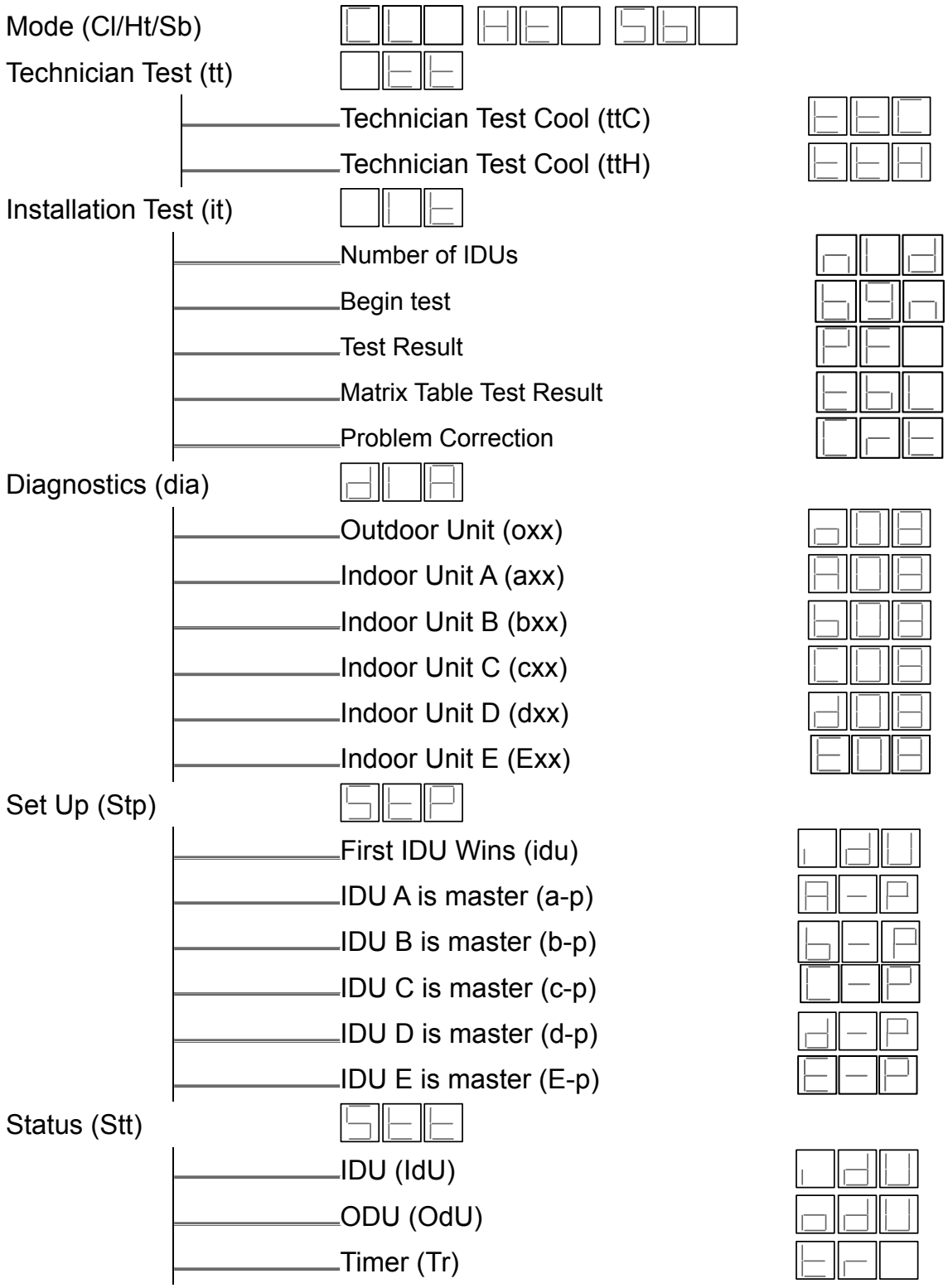
12.9.2 Keys functionality

- Scrolling will be done whenever the button is pressed.
- When scrolling alpha values, if the scroll button is held in, the selection will change at the rate of one step per second.
- When changing/scrolling numeric value, if the scroll button is held in, the selection will change at the rate of one step per second. After 2 seconds, if the button continues to be held in, the rate of change will increase to 10 steps per second.

The display will not roll over during selection (for example stop/Ode/Dia/Stp/Par/stop)

12.9.3 Menus

12.9.3.1 Main Menu

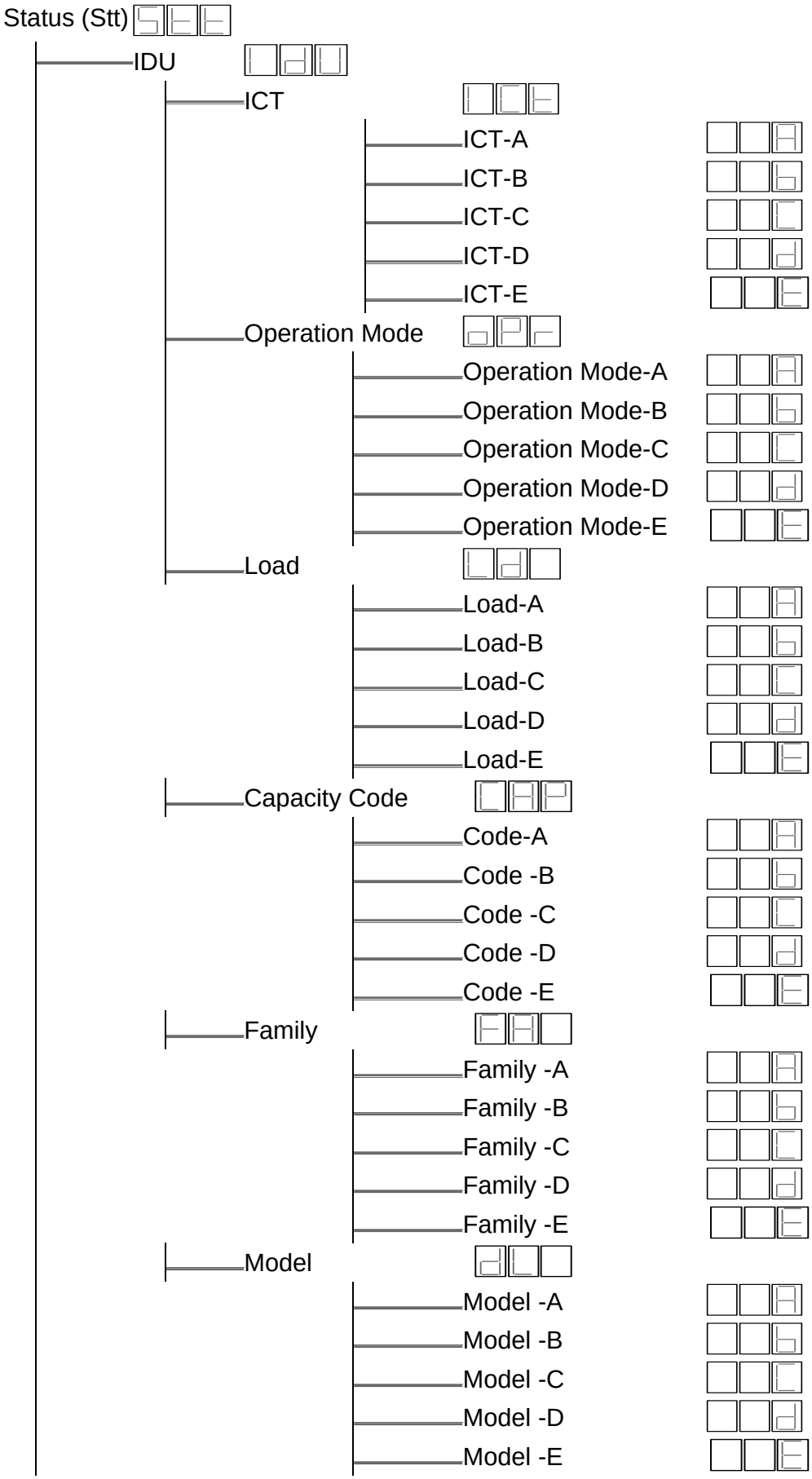


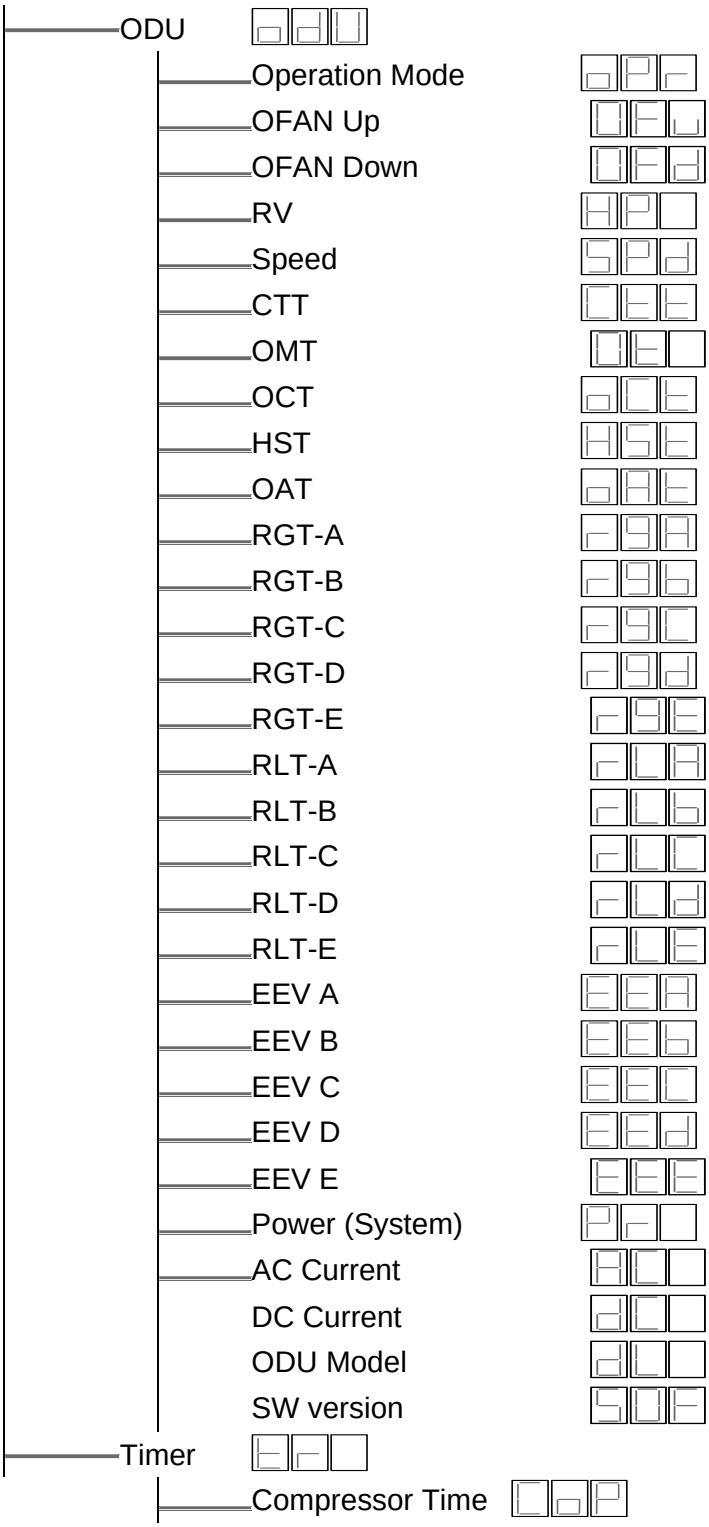
Notes:

- The default presentation will be the mode of the unit (Cl/Ht/Sb).
- In diagnostics menu, xx means failure code. Only the last active (operative) failure code will be shown, if there is no active failure a "-"sign will be shown (the faults Numbers are the one shown in the single split table).

- Technician Test mode is exited after 60 minutes from entry.
- All the menus, except technician menus- Status, Technician Test and their sub menus, are automatically exited to the main menu after 1 continuous minute out of any press.
- When Technician test cool or heat menu is selected, it will blink constantly until this menu is escaped.
- Pressing select and escape buttons together when in RST for more than 5 seconds will restore only the parameters of the factory settings. Acknowledge for restored parameters will be indicated by blinking RST for 3 seconds.

12.9.3.2 Status (Sub Menu)





***Notes*:**

- For the temperature display, when a thermistor is shorted or disconnected it shows FLT (FLt), when it is disabled it shows DIS (dis).
- It's possible to present a number between 999 and 99,999 by alternating between two numbers (each number is presented for 1 second). The two numbers format is "xx, yyy".
- Pressing select + escape together for 5 seconds will reset the counter to 0.
- The compressor time is measured in hours.

12.10 Jumper/DIP-Switch Setting

12.10.1 Jumper/DIP-Switch Definition

0 = Open (Disconnected)

1 = Close (Shorted)

12.10.2 IDU Jumpers/DIP-Switch

12.10.2.1 Self test Jumper/DIP – J1

Position	Status	Description
0	Open (Disconnected)	Normal Operation (Default)
1	Close (Shorted)	Self Test enabled

Used for internal production line testing. For normal use must be set to OFF (0).

12.10.2.2 Compensation Jumper/DIP – J2

Model	J2 (Default)	Compensation
WNG/WNG18/WNG30	0	Activated
PXD	1	Deactivated
CK/LSN/DNG/TOP/HAD/Delta	1	Activated

12.10.2.3 Family selection Jumper/DIP – J3, J4, J5, J6, J11

Family Name – Family Number	J11	J8	J7	J6	J5	J4	J3
$Delta_A$- 0	0	See model selection		0	0	0	0
HAD/HCD_A- 1	1			0	0	0	1
WNG - 3	NA			NA	0	1	1
PXD - 4	0			0	1	0	0
HAD/HCD/WNG18 - 8	0			1	0	0	0
WNG30 - 9	0			1	0	0	1
$Delta_B$ - 10	0			1	0	1	0
DNG 50- 12	NA	0	0	0	1	0	1
DNG 60- 12	NA	0	0	0	1	1	0
DNG 72- 12	NA	1	0	0	1	0	1
DNG 80- 12	NA	1	1	0	1	0	1
CN_A - 16	1	See model selection		0	0	0	0
CN_B - 17	1			0	0	0	1
LSN_A - 24	1			1	0	0	0
LSN_B - 25	1			1	0	0	1
TOP - 26	1			1	0	1	0

12.10.2.4 Model selection Jumper/DIP – J7, J8

Model	J8	J7
A	0	0
B	0	1
C	1	0
D	1	1

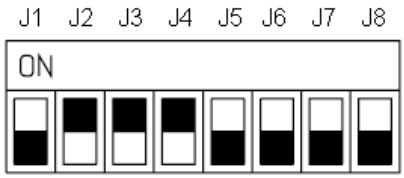
12.10.2.5 Presence Detector/DIP – J9

Position	Status	Description
0	Open (Disconnected)	Presence detector enabled (Default)
1	Close (Shorted)	NA (Not to be used)

12.10.2.6 Installation height /DIP – J12/13

Installation Height designation	Installation Height	J13	J12
H0	2.1-2.7m	0	0
H1 (default)	2.7-3.3m	0	1
H2	>3.3m	1	0
H3	Reserved	1	1

12.10.3 ODU Jumpers



12.10.3.1 Self test Jumper/DIP – J1

Position	Status	Description
0	Open (Disconnected)	Normal Operation (Default)
1	Close (Shorted)	Self Test enabled

Used for internal production line testing. For normal use must be set to OFF (0).

12.10.3.2 ODU Model Selection Jumper/DIP – J2, J3, J4, J5, J6

ODU Model	J2	J3	J4	J5	J6
AB (DCR100)	OFF	OFF	ON	ON	OFF

12.10.3.3 TPT test Jumper/DIP – J8

Position	Status	Description
0	Open (Disconnected)	Normal Operation (Default)
1	Close (Shorted)	Test enabled

Used for technician testing – TPT. For normal use must be set to OFF (0).

12.10.4 Remote Control DIP Switch Settings

SETTING SWITCH STATUS				DEFINITION	
SW. NO. 1	*SW. NO. 2*	*SW. NO. 3*	*SW. NO. 4*	*RC3*	*RC4 / RC4i / RC7*
OFF	OFF	--	--	RC - all modes of operation	
ON	OFF	--	--	ST - COOL, FAN, DRY modes active	
OFF	ON	--	--	HEAT COOL, FAN, DRY modes active	
ON	ON	--	--	Auto Mode, FAN modes active	
--	--	OFF	--	Temp. Display in °C degrees	Vertical swing only
--	--	ON	--	Temp. Display in °F degrees	Horizontal & vertical swing functions together
--	--	--	OFF	Timer & clock 12h am, pm	Disable LCD & key illumination
--	--	--	ON	Timer & clock 24h	Enable LCD & key illumination

Reset operation **–** Press all 4 buttons simultaneously for 5 sec.: “CLEAR“, “SET”, “HR+”, ”HR-”.
DIP Switch Position: **OFF** = 0, **ON** = 1

NOTE - After setting the DIP switches perform reset operation.

12.11 System Parameters

12.11.1 General Parameters for All Models

#	Name	Default Value	Units
1.	*MinOFFTime*	3	minute
2.	*MinONTime*	3	minute
3.	*HzDown1*	3	Hz/min
4.	*HzDown2*	5	Hz/min
5.	*DImin*	30	minute
6.	*DImax*	120	minute
7.	*TimeD*	1	minute
8.	*DTmin*	2	minute
9.	*DIT*	10	minute
10.	*CTMRUP*	10	minute
11.	*DIF*	30	minute
12.	*TCT*	240	second
12.	*HSTOHDelta1*	-1	NA
14.	*HSTOHDelta2*	1	NA
15.	*CompBalanceTimeA*	5	minute
16.	*CompBalanceTimeIA*	10	minute
17.	*IDUChngBalanceTime*	2	minute
18.	*DEICT1*	60	second
19.	*DEICT2*	36	second
20.	*DEICT3*	6	second
21.	*DSTF*	12	°C
22.	*DeiceFreqChRV*	0	Hz
23.	*OMTOH1*	58	°C
24.	*OMTOH2*	60	°C
25.	*OMTOH3*	62	°C
26.	*OMTOH4*	64	°C
27.	*OMTOH5*	66	°C
28.	*ICTOH1*	49	°C
29.	*ICTOH2*	51	°C
30.	*ICTOH3*	53	°C

#	Name	Default Value	Units
31.	*ICTOH4*	55	°C
32.	*ICTOH5*	58	°C
33.	*ICTOH6*	61	°C
34.	*EEVLearning*	1	NA
35.	*EEVTimeSingleDSH*	30	second
36.	*EEVTimeSingleCTT*	40	second
37.	*EEVTimeMultiSHC*	30	second
38.	*EEVTimeMultiDSHC*	30	second
39.	*EEVTimeMultiSCH*	30	second
40.	*EEVTimeMultiDSHH*	30	second
41.	*EEVTimeMultiFBH*	60	Second
42.	*UpToDownHzUp*	1	HZ
43.	*PSFactor*	0.7	#

12.11.2 ODU Model Dependent Parameters

№	Name	AB	Unit
1.	*MinFreqC*	***20***	Hz
2.	*MinFreqCA*	***20***	Hz
3.	*MaxFreqC*	***90***	Hz
4.	*MinFreqH*	***20***	Hz
5.	*MinFreqHA*	***20***	Hz
6.	*MaxFreqH*	***95***	Hz
7.	*HPAtMinFreqC*	***42***	°C
8.	*HPAtMinFreqCA*	50	°C
9.	*HPAtMinFreqH*	***42***	°C
10.	*HPAtMinFreqHA*	50	°C
11.	*Step1Freq*	***40***	Hz
12.	*Step2Freq*	***70***	Hz
12.	*Step3Freq*	***90***	Hz
14.	*OFMinRPMC*	***20***	*10RPM
15.	*OFMinRPMH*	***20***	*10RPM
16.	*OFMaxRPM*	***110***	*10RPM
17.	*NightRPM*	***80***	*10RPM
18.	*OFNNoiseMaxRPMC*	***90***	*10RPM
19.	*OFNNoiseMaxRPMH*	***100***	*10RPM
20.	*CTTOH1*	***87***	°C
21.	*CTTOH2*	***90***	°C
22.	*CTTOH3*	***92***	°C
23.	*CTTOH4*	***95***	°C
24.	*CCROC1*	***17.0***	A
25.	*CCROC2*	***17.6***	A
26.	*CCROC3*	***18.2***	A
27.	*CCROC4*	***19.0***	A
28.	*DCCOC1*	***12.4***	A
29.	*DCCOC2*	***12.8***	A
30.	*DCCOC3*	***12.2***	A
31.	*DCCOC4*	***12.6***	A
32.	*HSTOH1*	***70***	°C
33.	*HSTOH2*	***73***	°C
34.	*HSTOH3*	***75***	°C
35.	*HSTOH4*	***78***	°C
36.	*HSTOH5*	***80***	°C
37.	*EEVMaxOperOpenC*	***480***	step
38.	*EEVMaxOperOpenH*	***480***	step

№	Name	AB	Unit
39.	*EEVMultiMinOperOpenC*	***50***	step
40.	*EEVMultiMinOperOpenH*	***50***	step
41.	*EEVMinOperOpenHInactive*	***50***	step
42.	*EEVMaxOperOpenHInactive*	***120***	step
43.	*NormAccel*	***1***	Hz/s
44.	*NormDecel*	***1***	Hz/s
45.	*OCTExitDeicer*	***12***	°C
46.	*MaxDeicerTime*	***12***	minute
47.	*EEVDecierOpenMulti*	***160***	Step
48.	*DeicerCoef*	***0.8***	NA
49.	*EEV_Active_H_Isotherm*	***6***	°C
50.	*EEV_Active_H_SC*	15	°C
51.	*EEV_Active_H_SC_Crct*	1	°C
52.	*EnableExceedCond*	0	NA
53.	*MinSumCapCode1*	1	NA
54.	*MinSumCapCode2*	4	NA
55.	*MinSumCapCode3*	3	NA
56.	*MinSumCapCode4*	4	NA
57.	*MinSumCapCode5*	5	NA
58.	*MaxSumCapCode1*	4	NA
59.	*MaxSumCapCode2*	6	NA
60.	*MaxSumCapCode3*	6	NA
61.	*MaxSumCapCode4*	6	NA
62.	*MaxSumCapCode5*	6	NA
63.	*Max_IDU_Number*	***5***	NA
64.	*NightRPS*	***70***	RPS
65.	*CCHoutput*	***0***	NA
66.	*CCHDuty*	***0***	No.
67.	*OCT_OFAN_Noise_Max*	***8***	*°C*
68.	*OMT_OFAN_Noise_Max*	***38***	*°C*
69.	*Target_CTT_Alpha_C*	**1.663**	NA
70.	*Target_CTT_Beta_C*	**0.785**	NA
71.	*Target_CTT_Gamma_C*	**0.1**	NA
72.	*Target_CTT_Delta_C*	**0**	NA
73.	*Target_CTT_Alpha_H*	**1.559**	NA
74.	*Target_CTT_Beta_H*	**0.906**	NA
75.	*Target_CTT_Gamma_H*	**0.044**	NA
76.	*Target_CTT_Detla_H*	**0**	NA

12.11.3 Indoor Units SW Parameters

ICTST Speed	ICT to stop indoor fan	25
ICTVLSpeed	ICT to go down to very low speed	28
ICTLSpeed	ICT to start in very low speed	30
ICTHSpeed	ICT to start in increase speed from very low	32
ICTTSpeed	ICT to enable Turbo fan speed	40
ICTDef1	ICT to go back to normal	8
ICTDef2	ICT to ‘stop rise’ when ICT decrease	6
ICTDef3	ICT to ‘stop rise’ when ICT is stable	4
ICTDef4	ICT to ‘Hz Down’ when ICT decrease	2
ICTDef5	ICT to ‘Hz Down’ when ICT is stable	0
ICTDef6	ICT to stop compressor	-2

12.11.3.1 Model Depended Parameters:

12.11.3.1.1 Wall Mounted Models- WNG

Parameter name	Model				
	25	35	50	60	72
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C	40	40	45	50	30
MaxNLOADIF2C	53	53	62	85	44
MaxNLOADIF3C	127	127	127	127	105
MaxNLOADIF4C	127	127	127	127	127
MaxNLOADIF5C	127	127	127	127	127
Indoor Fan speed					
IFVLOWC	750	750	850	900	900
IFLOWC	850	850	950	1000	1000
IFMEDC	950	950	1050	1100	1150
IFHIGHC	1050	1100	1200	1250	1350
IFTURBOC	1150	1200	1250	1300	1400
IFVLOWH	750	800	800	800	850
IFLOWH	850	900	900	950	1000
IFMEDH	950	1000	1100	1150	1200
IFHIGHH	1100	1150	1250	1250	1350
IFTURBOH	1200	1250	1300	1300	1400

12.11.3.1.2 Wall Mounted Models- Delta/ HAD

Parameter name	Model					
	22	25	35	50	60	72
NLOAD limits as a function of selected indoor fan speed						
MaxNLOADIF1C	43	45	42	45	50	30
MaxNLOADIF2C	48	58	60	62	85	44
MaxNLOADIF3C	65	75	80	127	127	105
MaxNLOADIF4C	127	127	127	127	127	127
MaxNLOADIF5C	127	127	127	127	127	127
Indoor Fan speed						
IFVLOWC	750	800	800	850	900	900
IFLOWC	850	900	900	950	1000	1000
IFMEDC	950	1050	1000	1050	1100	1150
IFHIGHC	1100	1200	1200	1200	1250	1350
IFTURBOC	1200	1250	1250	1250	1300	1400
IFVLOWH	850	850	900	800	800	850
IFLOWH	950	950	1000	900	950	1000
IFMEDH	1050	1050	1100	1100	1150	1200
IFHIGHH	1150	1250	1250	1250	1250	1350
IFTURBOH	1250	1300	1300	1300	1300	1400

12.11.3.1.3 Wall Mounted Models- Top

Parameter name	Model				
	25	35			
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C	47	42			
MaxNLOADIF2C	70	59			
MaxNLOADIF3C	127	127			
MaxNLOADIF4C	127	127			
MaxNLOADIF5C	127	127			
Indoor Fan speed					
IFVLOWC	400	400			
IFLOWC	450	450			
IFMEDC	490	510			
IFHIGHC	520	540			
IFTURBOC	570	590			
IFVLOWH	400	400			
IFLOWH	450	450			
IFMEDH	490	510			
IFHIGHH	520	590			
IFTURBOH	620	820			

12.11.3.1.4 Floor/Ceiling Models - PXD

Parameter name	Model				
	25	35	50	60	72
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C	40	40	40	50	50
MaxNLOADIF2C	53	53	60	70	60
MaxNLOADIF3C	127	127	90	127	127
MaxNLOADIF4C	127	127	90	127	127
MaxNLOADIF5C	127	127	90	127	127
Indoor Fan speed					
IFVLOWC	**Fix RPM Motor**				
IFLOWC					
IFMEDC					
IFHIGHC					
IFTURBOC					
IFVLOWH					
IFLOWH					
IFMEDH					
IFHIGHH					
IFTURBOH					

12.11.3.1.5 Cassettes Models - CN

Parameter name	Model				
	25	35	50	60	72
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C	47	42	55	56	50
MaxNLOADIF2C	70	60	78	81	70
MaxNLOADIF3C	127	127	127	127	127
MaxNLOADIF4C	127	127	127	127	127
MaxNLOADIF5C	127	127	127	127	127
Indoor Fan speed					
IFVLOWC	400	400	500	550	600
IFLOWC	450	450	550	600	650
IFMEDC	500	520	620	660	700
IFHIGHC	550	600	680	720	750
IFTURBOC	650	700	800	900	1000
IFVLOWH	400	400	500	550	600
IFLOWH	450	450	550	600	650
IFMEDH	520	550	620	660	700
IFHIGHH	600	650	680	720	750
IFTURBOH	650	700	850	950	1000

12.11.3.1.6 Ducted Models - LSN

Parameter name	Model				
	25	35	50	60	72
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C	127	127	127	127	127
MaxNLOADIF2C	127	127	127	127	127
MaxNLOADIF3C	127	127	127	127	127
MaxNLOADIF4C	127	127	127	127	127
MaxNLOADIF5C	127	127	127	127	127
Indoor Fan speed					
IFVLOWC	740	730	860	960	980
IFLOWC	740	730	860	960	980
IFMEDC	810	860	980	1050	1050
IFHIGHC	920	980	1100	1170	1200
IFTURBOC	960	1060	1170	1240	1280
IFVLOWH	740	730	860	960	980
IFLOWH	740	730	860	960	980
IFMEDH	810	860	980	1050	1050
IFHIGHH	920	980	1100	1170	1200
IFTURBOH	960	1060	1220	1240	1280

12.11.3.1.7 Ducted Models - DNG

Parameter name	Model				
			50	60	72
NLOAD limits as a function of selected indoor fan speed					
MaxNLOADIF1C			50	50	127
MaxNLOADIF2C			63	63	127
MaxNLOADIF3C			127	127	127
MaxNLOADIF4C			127	127	127
MaxNLOADIF5C			127	127	127
Indoor Fan speed					
IFVLOWC	**Fix RPM Motor**				
IFLOWC					
IFMEDC					
IFHIGHC					
IFTURBOC					
IFVLOWH					
IFLOWH					
IFMEDH					
IFHIGHH					
IFTURBOH					

13. TROUBLESHOOTING

13.1 Precaution, Advise and Notice Items

13.1.1 High voltage in Indoor and Outdoor unit electrical assembly

- Open the Outdoor unit controller assembly only after one minute from power off.
- Whole controller assembly, including the wires, connected to the Outdoor unit may have the potential hazard voltage when power is on.
- Touching the Outdoor unit controller assembly may cause an electrical shock.
- Do not touch the naked lead wire and don't insert finger, conductor or anything else into the controller when power is on.

13.1.2 Charged Capacitors

- Large capacity electrolytic capacitors are used in the outdoor unit controller and driver.
- Charging voltage (380VDC) remains after power is down.
- Discharging takes about one minute after turned off.
- Touching the outdoor unit electrical assembly before discharging may cause an electrical shock.
- Measure the electrolytic capacitors voltage to be below 50VDC before further checking electrical assembly parts.

13.1.3 Advisory Notes

- When open the Outdoor unit electrical assembly, don't touch the soldering pin by hand or by any conductive material.
- When connecting or disconnecting the connectors on the PCB, hold the whole housing, don't pull the wire.

WARNING!!!

- When Power Up – the outdoor and indoor unit electrical assemblies, including the wiring, are under HIGH VOLTAGE!!!
- Never open the outdoor or indoor units before turning off **ALL** Power sources!!!
- When turned off, the outdoor unit electrical assembly is still charged (400V)!!!
- DC capacitors are discharging for about 1 Minute after power is OFF.
- Touching the electrical before discharging may cause an electrical shock!!!
- **For safe handling of the electrical assembly please refer to section *13.1* above.**

13.2 General System Failures and Corrective Actions

№	SYMPTOM / PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Indoor unit			
1	Indoor unit power supply indicator (Red LED) does not light up.	No Power supply	Check supply voltage to main terminals L and N with volt meter.
		Miss-wiring	Check all supply wiring to controller and terminals according to wiring diagram
		Loose connection	Check all power wiring connections
		Display and display cable	Check continuity of each wire of the display wires/pins with Ohm meter
		If still not OK	Check if fuse burnt
2	Fuse burned in indoor unit controller	Short Circuit between wires	Check for any cuts or exposed supply wires or miss-wiring
		Failure of Indoor Unit Fan Motor	Check the motor and capacitor (***13.5.19***) Check for any cuts or exposed wires
		If still not OK	Replace fuse
3	Indoor unit does not respond to remote control message	Remote control message not reached the indoor unit	Check remote control batteries
			Check continuity of each wire of the display wires/pins with Ohm meter
		If still not OK	Replace display box or indoor Electronic Assembly
4	Indoor unit responds to remote control message but Operate indicator (Green LED) does not light up	Problem with display PCB	Replace display PCB.
		If still not OK	Replace indoor Electronic Assembly
5	Indoor fan does not start (louvers are opened and Green LED is ON)	Unit in heat mode and coil is still not warm	Change to Cool or Fan mode
		Failure of Indoor Unit Fan Motor	Check the motor and capacitor (***13.5.19***) Check for any cuts or exposed wires
		Problem with controller or motor capacitor	Change to high speed and Check power supply to motor is higher than 220VAC
		If still not OK	Replace indoor Electronic Assembly
6	Indoor fan works when unit is OFF, and indoor fan speed is not changed by remote control command.	Controller problem	Replace indoor Electronic Assembly
7	Water leakage from indoor unit	Indoor unit drainage tube is blocked	Check and open drainage tube
8	One indoor unit or more are operating in cool mode with no capacity, and the other units have water leaks/ freezing problems	The communication wires of the indoor units are switched	Check and correct the communication wires connection
9	One indoor or more are operating in heat mode with a limited capacity, and the coil on the other units are very hot.		
Outdoor unit			
10	Outdoor unit display board and LEDs are off	No power supply	Check supply voltage to main terminals L and N with volt meter.
		Miss-wiring	Check all supply wiring to controller and terminals according to wiring diagram
		Loose connection	Check all power wiring connections
		Burnt fuse	Check fuse on the main board (***13.5.5***)
		If still not OK	Replace main board (***14.1.13***)

№	SYMPTOM / PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
11	Compressor does not start operation	One or some components are not operating well	Check for any fault code shown on display board and act accordingly (***13.4***)
		Electronics control problem or protection	
		PFC Chock coil	Check the PFC Chock coil (***13.5.6***)
		Driver failure	Check if fault code #11, 18, 19 or 26 is shown on display board. If so, fix the problem according to ***13.5.5*** or replace driver (*14.1.15.*).
		If still not OK	Replace compressor (*14.1.11.*)
12	Cooling capacity is not sufficient	Unit size not match the load	Check if the size chosen for the complete room(s) load is enough or need bigger units
		Piping size not matching system	Check if piping is installed correctly and proper diameter size and total length is according to unit specifications
		Refrigerant leakage	Check refrigeration system (***13.3***)
		Refrigerant over-charge	
		Refrigerant clog	Check and repair clogging specially near the EEV
		Electronics control problem or protection	Check for any fault code shown on display board and act accordingly (***13.4***)
		Compressor failure	Check if fault code #11 or 26 is shown on display board. If so, fix the problem according to ***13.5.10*** or replace driver
		Indoor coil block	Clean filters and/or remove block or air by-pass
		Indoor fan malfunction	Check the motor and capacitor ***(13.5.19***)
		Outdoor coil block	Remove block and/or avoid air by-pass
		Outdoor fan malfunction	Check outdoor fan motors (***13.5.9***)
		EEV malfunction	Check EEV (***13.5.12***)
		Thermistor(s) malfunction	Check if any of fault codes #1-10 is shown on display board. Replace faulty thermistors (*14.1.12.*)
13	Heating capacity is not sufficient	Check all according to above cooling problem (***10***)	
		Reverse valve	Check reversing valve operation (***13.5.11***)
		Deicing not performed well (during low outdoors temperatures)	Check OCT and OAT thermistors fault codes (#1-2 and 7-8) Check OCT thermistor if connected well to pipe Check OAT thermistor if connected well Check the thermistors operation (***13.5.13***)
14	Compressor is over heated	Electronic control	Check for any fault code shown on display board and act accordingly (***13.4***)
		EEV problem	Check EEV (***13.5.12***)
		Refrigerant leakage	Check refrigeration system (***13.3***)
		Indoor coil block	Clean filters and/or remove block
		Indoor fan malfunction	Check indoor fan motor and capacitor (***13.5.19***)
		Outdoor coil block	Remove block and/or avoid air by-pass
		Outdoor fan malfunction	Check outdoor fan motors (***13.5.9***)
		Compressor malfunction	Check the compressor (***13.5.10***)
15	Compressor stops many times during operation	Check all according to above problem (***12***)	
		HP Switch	Check if HPS fault code (#8) is accruing frequently. If so, check the switch operation (***13.5.14***)
		LP Switch	Check if LPS fault code (#9) is accruing frequently. If so, check the switch operation (***13.5.15***)
16	Not all units are operating	Communication problems	Check the communication between outdoor and indoor units (***13.5.17***)
17	Unit is cooling while in heat mode	RV problem	Check RV operation (***13.5.11***)
		IDU-ODU communication	Check the communication between outdoor and indoor units (***13.5.17***)

№	SYMPTOM / PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
18	Compressor is generating abnormal noise	Phase order to compressor is wrong	Check compressor phase order
		Compressor internal parts wearing	Replace compressor (*14.1.11.*)
		Vibration	Check all piping connections Check compressor rubbers are fixed well Check all screws on unit metal chassis are tightened Check that no piping is in contact with each other or with other parts.
19	Freezing of outdoor unit coil in heat mode and outdoor unit base is blocked with ice		Connect base heater
20	The unit stop suddenly during operation	EMC interference to the A/C unit	Check for EMC problems (***13.5.20.1***)
21	Indoor unit Indicator leds may flicker		
22	Other home appliances operation is faulty such as noise appears in the television picture, or the picture is distorted or static occurs in the radio sound	EMC interference by the A/C unit	Check for EMC problems (***13.5.20.2***)
23	All others		Check for any fault code shown on display board and act accordingly (***13.4***)

13.3 Checking the refrigeration system

Checking system pressures and other thermodynamic measures should be done when system is in technician Mode where the system operates as in fixed settings. The performance curves given in this manual are given for unit performance in Technician mode when high indoor fan speed is selected.
For entering technician mode check ***12.8***

13.4 Troubleshooting by Diagnostics Codes

13.4.1 Fault codes Outdoor unit

If any fault exists in the system, its fault will be shown according to the following coding method.
The 5 last fault occurred in the system will be stored in the EEPROM.
If no fault exist in the system, no fault code will be displayed during normal operation mode. STATUS LED is blinking 5 times in 5 seconds, and shut off for the next 5 seconds.
FAULT LED will blink during the same 5 seconds according to the following table.

The LED coding method is as follow:

№	Problem	AO	5	4	3	2	1
1	OCT is shorted/disconnected	Yes	0	0	0	0	1
2	CTT is shorted/disconnected	Yes	0	0	0	1	0
3	HST is shorted/disconnected	Yes	0	0	0	1	1
4	OAT is shorted/disconnected	Yes	0	0	1	0	0
5	OMT is shorted/disconnected	Yes	0	0	1	0	1
6	RGT is shorted/disconnected	Yes	0	0	1	1	0
7	RLT is shorted/disconnected	Yes	0	0	1	1	1
8	High pressure protection	Yes	0	1	0	0	0
9	Low pressure protection	Yes	0	1	0	0	1
10	No communication to Driver	Yes	0	1	0	1	0
11	Compressor IPM Fault / IPM Driver Pin / Compressor Current Sensor Fault	Yes	0	1	0	1	1
12	Bad EEPROM	No	0	1	1	0	0
13	DC under voltage	Yes	0	1	1	0	1
14	DC over voltage	Yes	0	1	1	1	0
15	AC under voltage/AC over Voltage/Zero Crossing detection	Yes	0	1	1	1	1
16	Mismatch between IDU & ODU models	Yes	1	0	0	0	0
17	No Communication	Yes	1	0	0	0	1
18	System Over Power	Yes	1	0	0	1	0
19	PFC Current sensor	Yes	1	0	0	1	1
20	Heat sink Over Heating	No	1	0	1	0	0
21	Deicing	No	1	0	1	0	1
22	Compressor Over Heating	No	1	0	1	1	0
23	Compressor Over Current	No	1	0	1	1	1
24	No OFAN Feedback (Both OFAN_UP or OFAN_DN)	Yes	1	1	0	0	0
25	OFAN IPM fault / OFAN IPM Driver Pin	Yes	1	1	0	0	1
26	Compressor Lock	Yes	1	1	0	1	0
27	Bad Communication	No	1	1	0	1	1
28	Missing ODU configuration	Yes	1	1	1	0	0
29	Undefined ODU Model	Yes	1	1	1	0	1
30	Outdoor/Indoor Coil Overheating	No	1	1	1	1	0
31	Operation conditions are exceeded	Yes	1	1	1	1	1

1 - ON; 0 - OFF

Only one code is shown. Order of priority is lower to the higher number. Diagnostics is continuously ON as long power is on.

13.4.2 Outdoor unit diagnostics and corrective actions

№	Fault Name	Fault Description	Corrective Action
1	OCT short/disconnect	Thermistor not connected or damaged	Check Thermistor (***13.5.13***)
2	CTT short/disconnect		
3	HST short/disconnect		
4	OAT short/disconnect		
5	OMT short/disconnect		
6	RGT short/disconnect		
7	RLT short/disconnect		
8	High pressure protection	Compressor stopped due to high pressure protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant clog. Check the switch operation (***13.5.14***)
9	Low pressure protection	Compressor stopped due to low pressure protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant leak. Check the switch operation (***13.5.15***)
10	No communication to Driver	Driver fault	Check power supply to driver Check driver communication (***13.5.16***)
11	Compressor IPM Fault / IPM Driver Pin /	Over current / IPM malfunction	Check no obstruction to electrical box and outdoor coil air inlet Check Compressor (***13.5.10***)
12	Bad EEPROM	EEPROM parameters are corrupted	Reset the power. If problem still exist replace PCB only of need to change parameters
13	DC under voltage	DC voltage is lower than limit	Check if input voltage lower than limit (198VAC), if not and the problem persists, replace driver. If voltage is low, recommend the customer to fix the power supply Check driver (***13.5.5***) Check DC capacitors (***13.5.7***)
14	DC over voltage	DC voltage exceeds its high limit	Check if input voltage higher than limit (264VAC), if not and the problem persists, replace driver. If voltage is high, shut off the power and recommend the customer to fix the power supply
15	AC under voltage/AC over Voltage/Zero Crossing	AC input voltage is lower/higher than limit	Check if input voltage lower than limit (<198VAC) or higher (>264V), if not and the problem persists, replace driver. If voltage is low, recommend the customer to fix the power supply
16	Mismatch between IDU & ODU models	Mismatch between IDU and ODU models	Indoor unit sizes are exceeding outdoor unit capacity, check indoor units model plugs. Eigther too high or too low capacity indoor units
			May caused by persisitng non communication between indoor and outdoor unit.
17	No Communication to IDU	IDU-ODU communication	Check communication between indoor and outdoor units (***13.5.17***)
18	System Over Power	Protection – not available	-
19	PFC Current sensor	Driver fault	Replace Compressor Driver
20	Heat sink Over Heating	Compressor stopped due to heat sink protection	Check that the airflow around the ODU is free and the fan is running free Check the screws connecting the driver to heat sink are tighten Check outdoor fan motors (***13.5.9***)
21	Deicing	During deicing procedure	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant leak and thermodynamic operation (***13.3***)

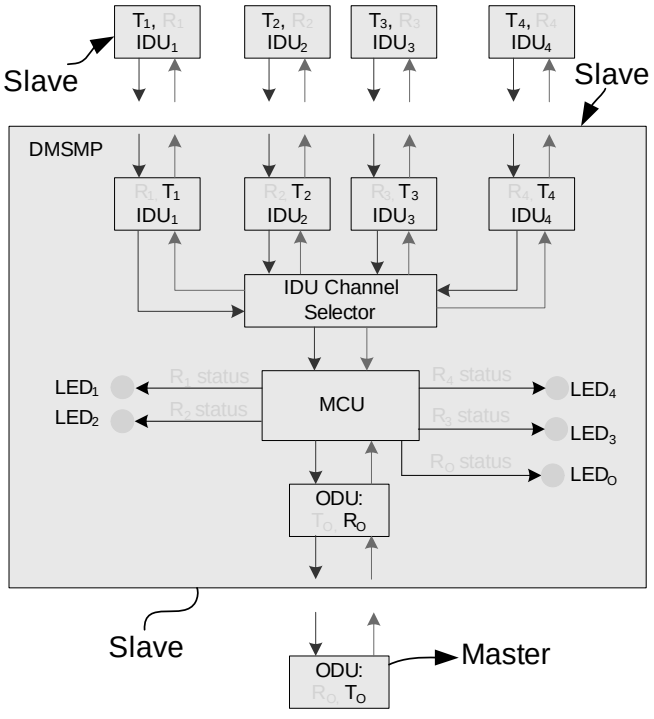
№	Fault Name	Fault Description	Corrective Action
22	Compressor Over Heating	Compressor stopped due to over heat protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant leak and thermodynamic operation (***13.3***)
23	Compressor Over Current	Compressor stopped due to over current protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant leak or clog and thermodynamic operation (***13.3***)
24	No OFAN Feedback (Both OFAN_UP or OFAN_DN)	Outdoor fan(s) does not rotate	Check no obstruction to outdoor unit coil air path Check OFAN motor (***13.5.9***)
25	OFAN IPM fault / OFAN IPM Driver Pin	Not available	-
26	Compressor Lock	Compressor does not rotate	Check Compressor (***13.5.10***) Check driver (***13.5.5***)
27	Bad Communication	Bad communication lines	Check communication between indoor and outdoor units (***13.5.17***)
28	Missing ODU configuration	ODU dip switch setting in abnormal	Change setting according table.
29	Undefined ODU Model	ODU dip switch setting in abnormal	Change setting according table.
30	Outdoor/Indoor Coil Over-heating	Compressor stopped due to over heating protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant clog and thermodynamic operation (***13.3***)
31	Operation conditions are exceeded	System is performing out of its outdoor condition limitiations: Cooling: >46°C , <-11°C. Heating: >30°C , <-18°C. Indication only, no action.	Check if indeed the conditions are exceeded. If not, check OAT thermistor, if OK, check no obstructions to outdoor air path.

13.4.3 DMSMP (CINCO) Diagnostics

The DMSMP system has 4 IDU LEDs, 1 ODU LED, and 1 Power LED.

Each communication channel is built up from receiving and transmitting channels.

The outdoor controller is the master of communication (always initiated communication) while the DMSMP and indoor are slave (responds only when it receives).



Channel	LED
R_i has communication	The relevant LED_i will be ON.
R_i has no communication	The relevant LED_i will be Off.

Damage	Outdoor	Indoors no com?	LED1	LED2	LED3	LED4	LEDO	How to check?
T_o(ODU)	No Com	All no com	Off	Off	Off	Off	Off	Voltage To(ODU) no change
R_o(DMSMP)	No Com	All no com	Off	Off	Off	Off	Off	Voltage To(ODU) changes Voltage Ro(DMSMP) no change
T_o(DMSMP)	No com	All ok	On	On	On	On	On	Voltage Ro(DMSMP) changes Voltage To(DMSMP) no change
Ro(ODU)	No com	All ok	On	On	On	On	On	Voltage To(DMSMP) changes. Voltage To(ODU) no changes.
T_4 (DMSMP)	Ok	Indoor 4	On	On	On	Off	On	Exchange with other IDU to know the problem is in the IDU or the DMSMP.
R_4(IDU)	Ok	Indoor 4	On	On	On	Off	On	
T4(IDU)	Ok	All ok	On	On	On	Off	On	
R4(DMMSP)	Ok	All ok	On	On	On	Off	On	

13.4.4 Fault Code for Indoor unit

Note: Indoor unit diagnostics can be viewed by the outdoor unit display board (13.4).
The below procedure is for viewing the indoor unit codes via the indoor unit led display.
Pressing Mode button for more than 5 seconds will activate diagnostic mode by the acknowledgment of 3 short beeps and lighting of COOL and HEAT LED's.
When Indoor diagnostics is displayed, all four LED's (STBY, Operate, Filter, TMR) are on.
Entering diagnostics in STBY mode allows only viewing of status (fault-display).
In diagnostic mode, system problems / information will be indicated by blinking of Heat & Cool LED's.
The coding method will be as follows:
Heat led will blink 5 times in 5 seconds, and then will be shut off for the next 5 seconds. Cool Led will blink during the same 5 seconds according to the following table:

№	Fault Name	5	4	3	2	1
1	RT-1 is disconnected	0	0	0	0	1
2	RT-1 is shorted	0	0	0	1	0
3	RT-2 is disconnected	0	0	0	1	1
4	RT-2 is shorted	0	0	1	0	0
…	Reserved	0	0	1	0	1
7	Communication mismatch	0	0	1	1	1
8	No Communication	0	1	0	0	0
9	No Encoder	0	1	0	0	1
10	Reserved	0	1	0	1	0
11	Outdoor Unit Fault	0	1	0	1	1
…	Reserved					
17	Defrost protection	1	0	0	0	1
18	Deicing Protection	1	0	0	1	0
19	Outdoor Unit Protection	1	0	0	1	1
20	Indoor Coil HP Protection	1	0	1	0	0
21	Overflow Protection	1	0	1	0	1
…	Reserved					
24	EEPROM Not Updated	1	1	0	0	0
25	Bad EEPROM	1	1	0	0	1
26	Bad Communication	1	1	0	1	0

№	Fault Name	5	4	3	2	1
27	Using EEPROM data	1	1	0	1	1
28	Model A	1	1	1	0	0
29	Model B	1	1	1	0	1
30	Model C	1	1	1	1	0
31	Model D	1	1	1	1	1

1 - ON; 0 - OFF

Only one code is shown. Order of priority is lower to the higher number. Diagnostics is continuously ON as long power is on.

13.4.5 Indoor unit diagnostics and corrective actions

№.	Fault	Probable Cause	Corrective Action
1-4	Sensor failures	Sensors not connected or damaged	Check Thermistor (***13.5.13***)
7	Communication mismatch	Mismatch between IDU and ODU models	Units are not designed to operate together as system. Check and replace the models installed.
8	No Communication	IDU-ODU communication	Check communication between indoor and outdoor units (***13.5.17***)
9	No Encoder	Indoor electronics or motor	Check motor wiring, if ok, replace motor
		If still not ok	replace Indoor electronic assembly
11	Outdoor Unit Fault	Outdoor controller problem	Check for any fault code shown on outdoor unit display board and act accordingly (***13.4***)
17-18	Protections	Indication	No action
19	Outdoor Unit Protection	Compressor stopped due to outdoor unit protection	Normally no action is required If the problem persists for more than twice on each hour, Check for any fault code shown on outdoor unit display board and act accordingly (***13.4***)
20	Indoor Coil HP Protection	Compressor stopped due to high pressure (heating) protection	Normally no action is required If the problem persists for more than twice on each hour, check for refrigerant leak and thermodynamic operation (***13.3***)
21	Overflow Protection	Compressor stopped due to water level overflow protection	Check the drainage tube for any clog.
24	EEPROM Not Updated	System is using ROM parameters and not EEPROM parameters	No action, unless special parameters are required for unit operation.
25	Bad EEPROM		No action, unless special parameters are required for unit operation.
26	Bad Communication	IDU-ODU communication	Check communication between indoor and outdoor units (***13.5.17***)
27	Using EEPROM data	No problem	
28	IDU model	Indoor unit model connected is shown: Model A	No problem
29		Indoor unit model connected is shown: Model B	
30		Indoor unit model connected is shown: Model C	
31		Indoor unit model connected is shown: Model D	

13.5 Procedures for checking Main Parts

13.5.1 Discharge DC Voltage

WARNING

High voltage!!!

Wait for DC voltage to be discharged before touching any part of the driver to avoid electric shock.

Check to ensure that DC voltage has reduced to below 50VDC, if not, keep waiting until it does.

13.5.2 Checking Mains Voltage

Confirm that the Mains voltage is between 198 and 264 VAC. If Mains voltage is out of this range, abnormal operation of the system is expected. If in range, check the Power (Circuit) Breaker and look for broken or loosed cable lugs or wiring mistakes.

13.5.3 Checking Line Filter Board

1) Check for any burn signs on the filter board and its coils and relays, replace if any.
2) Check voltage at the inlet and outlet of the line filter. If no output voltage, replace line filter.
3) In case of burnt main fuse in line filter – replace both Line filter and driver.

Replacing line filter - (***14.1.16***)

13.5.4 Checking Compressor Driver

In normal operation the red led in ON continuously and green led is blinking slow (1 time/sec).
Even is that case, there can still be a Hardware problem that prevents the system to perform well or at all. If no other problem is found, replace the driver.

1) In case green and/or red leds are OFF (one or both):
   - Check power supply to driver connected well and no burn marks on wiring.
   - PFC chock is connected well. Correct if needed.
   - Check PFC Chock (***13.5.5***). Replace chock if needed.
   - Check line filter and main fuse (20A). In case fuse is burnt, replace both driver and filter.
   - Check fuse on driver (3.15A). In case fuse is burnt, replace driver.

If all is well but still leds are OFF, Replace driver.
Replacing Driver – (***14.1.15***).

13.5.5 Checking PFC Chock coil

1) Check PFC chock connections – repair if needed.
2) Visually check to see any burn marks on the wires – replace the chock(s) if needed.
3) Disconnect the chock from the driver and check if the 2 ending wires of each chock are shorted (continuity check) – if they are NOT shorted replace the chock(s), if they are shorted – check the driver (***13.5.4***).

Replacing PFC chock - (***14.1.17***)

13.5.6 Checking fuse on Main Board

If the 3.15A fuse on the main Board is burnt check the outdoor fans or any other peripheral that can cause a short:

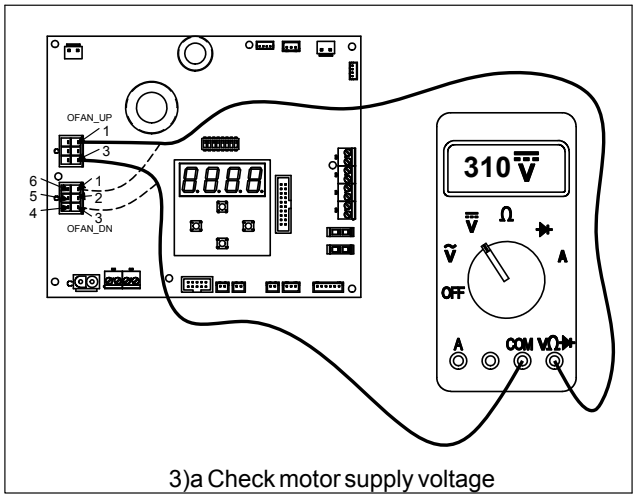
1) In case of a problematic peripheral - replace it.
2) In case no problematic peripheral replace the burnt fuse.
3) In case of frequent burning fuse, replace the controller.

Replacing main board - (***14.1.13***)

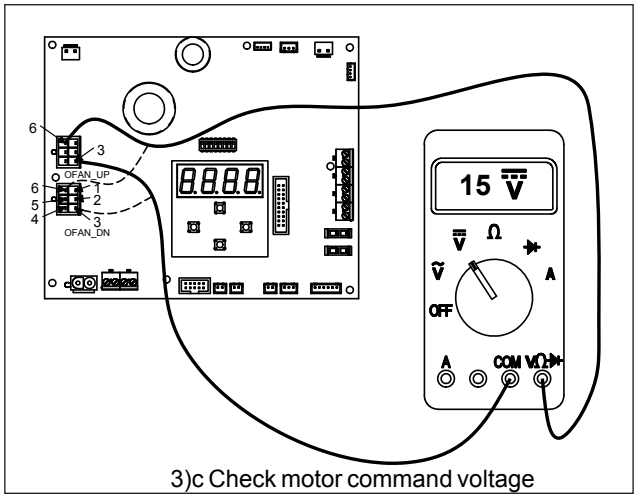
13.5.7 Checking Outdoor Fan Motor

This type of fault may occur during very high winds outdoors that may stop the fan rotation for short periods. If so, need to relocate the outdoor unit to a more protected place from winds or install measure of air deflection in front of the fan outlets.

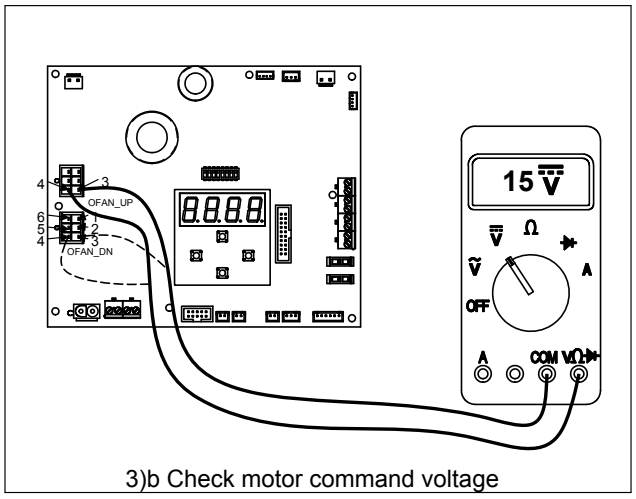
1) Check OFAN connections - Repair if needed.
2) Rotate the fan slowly by hand - If the fan does not rotate easily, check whether something is obstructing the fan preventing it from rotating – remove the obstruction if necessary. If no obstruction and still not operating - the fan motor bearings have seized - Replace the motor.
3) Disconnect the OFAN connector from the main board, switch ON the power and check the fan motor connector on the main board:
    a. Between 1 and 3 – should be 310VDC. If very low or 0VDC, replace main board.
    b. Between 3 and 4 – should be 15VDC. If very low or 0VDC, replace main board.
    c. Between 3 and 6 – should be 15VDC. If very low or 0VDC, replace main board.
4) Connect back the motor connector to the main board, switch ON the power and check the motor current while operating. Current should be around 1A - In case of abnormal current (no current or excessive current), replace fan motor.



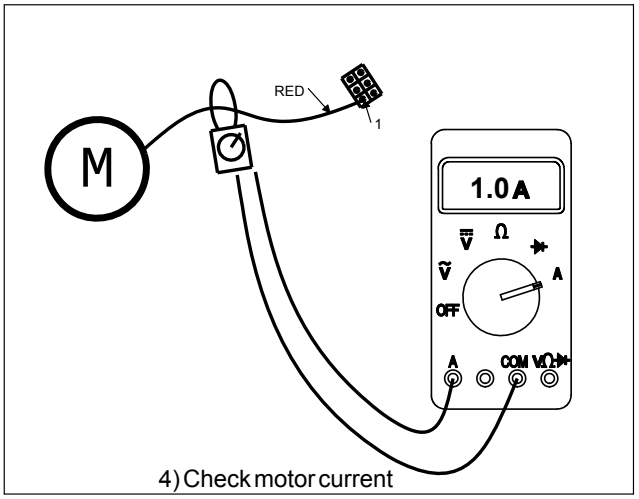
3)a Check motor supply voltage



3)c Check motor command voltage



3)b Check motor command voltage

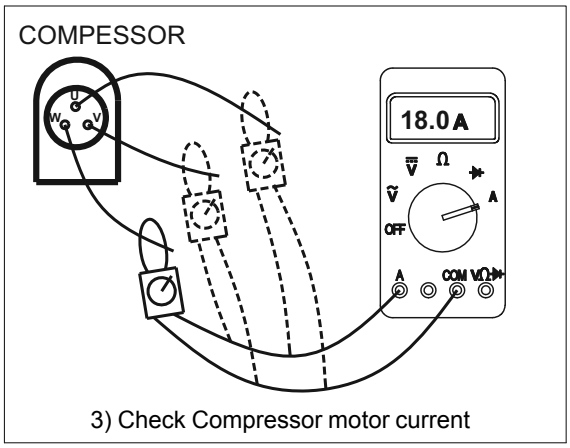


4) Check motor current

Replacing outdoor unit fan motor - (***14.1.17***)
Replacing main board - (***14.1.13***)

13.5.8 Checking Compressor

1) Check Compressor connections - Repair if needed.
2) Check the resistance between the three phases – all three coil resistances should be the same: around 0.788Ω.
3) Check the compressor current while operating to be the same on each wire - In case of abnormal current (no current or excessive current), the problem could be of driver or compressor – if driver is checked to be operating well (***13.5.5***), replace the compressor.



3) Check Compressor motor current

Replacing compressor- (***14.1.11***)

13.5.9 Checking Reverse Valve (RV)

The RV has two parts, Solenoid and valve.

1) Disconnect the RV connector from the main board and operate the unit in heating mode, check the voltage between two pins of reverse valve connector, normal voltage is 230VAC - if no power supply to RV, replace outdoor main board.
2) Check RV operation with direct 230VAC power supply. If RV solenoid is OK (but still no heating operation while compressor is ON), replace the RV valve from the refrigeration system.if not, replace the RV coil.

Replacing RV Coil (*14.1.8.*)
Replacing RV Valve - (***14.1.10***)
Replacing main board - (***14.1.13***)

13.5.10 Checking Electrical Expansion Valve (EEV)

The EEV has two parts, step motor and valve. Use additional set of valve and coil to check the system.

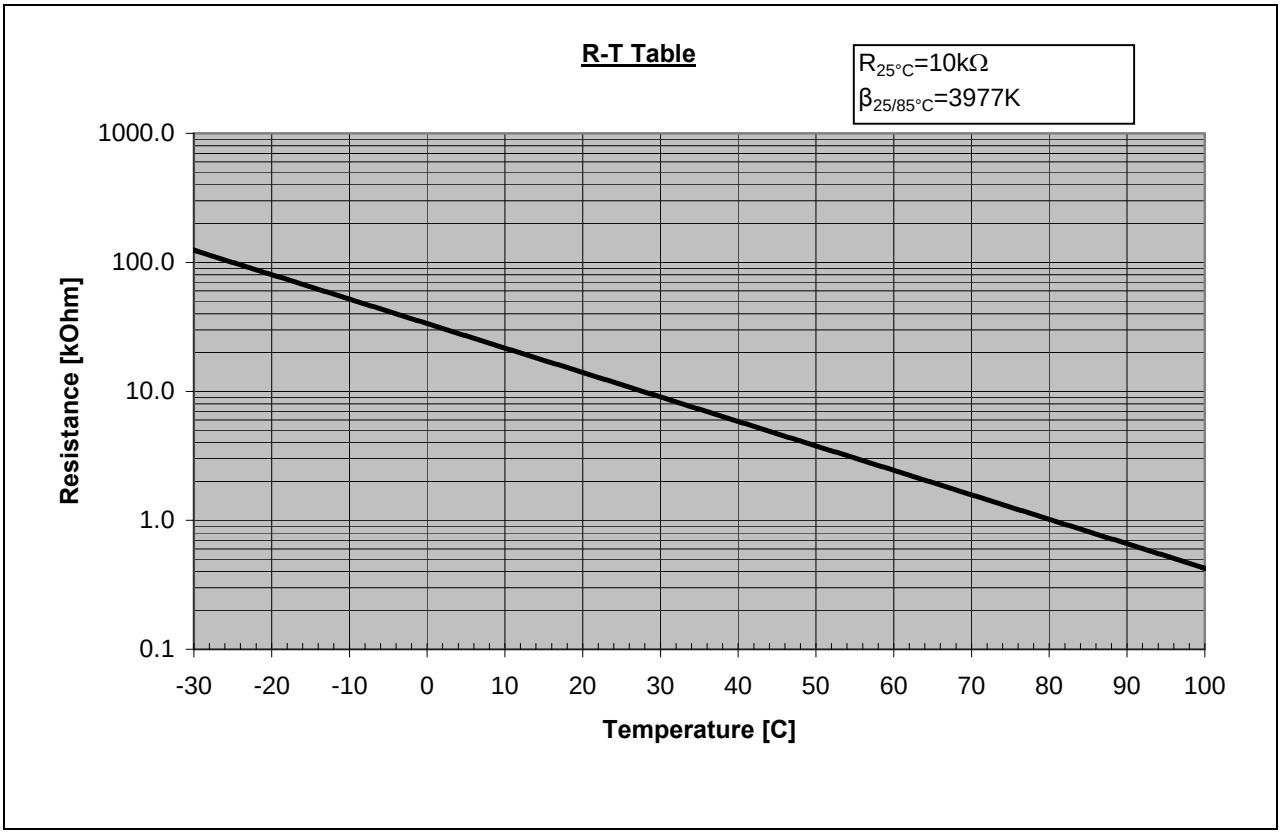
1) Check the impedance in the coil wires to be as following:
   Red/BRN wire to each of the other wires – about 100Ω
   Other wires – each one to the others (except Red/BRN) – about 50Ω
2) When Outdoor unit is powered on, EEV shall have vibration and click sound. If not, replace the coil with the additional one and check again – turn OFF the unit and than turn it ON, vibration and click sound should be performed. If OK, the coil was damaged and require to be replaced.
3) Turn OFF the unit, insert a good coil onto an additional operating valve and turn the unit ON, vibration and click sound should be performed. If OK, replace EEV valve from the unit.
4) If both EEV coil and valve are still not operating, replace the ODU main board.

Replacing EEV Valve Coil - (***14.1.9***)
Replacing EEV Valve - ***(14.1.10.)***
Replacing main board - (***14.1.13***)

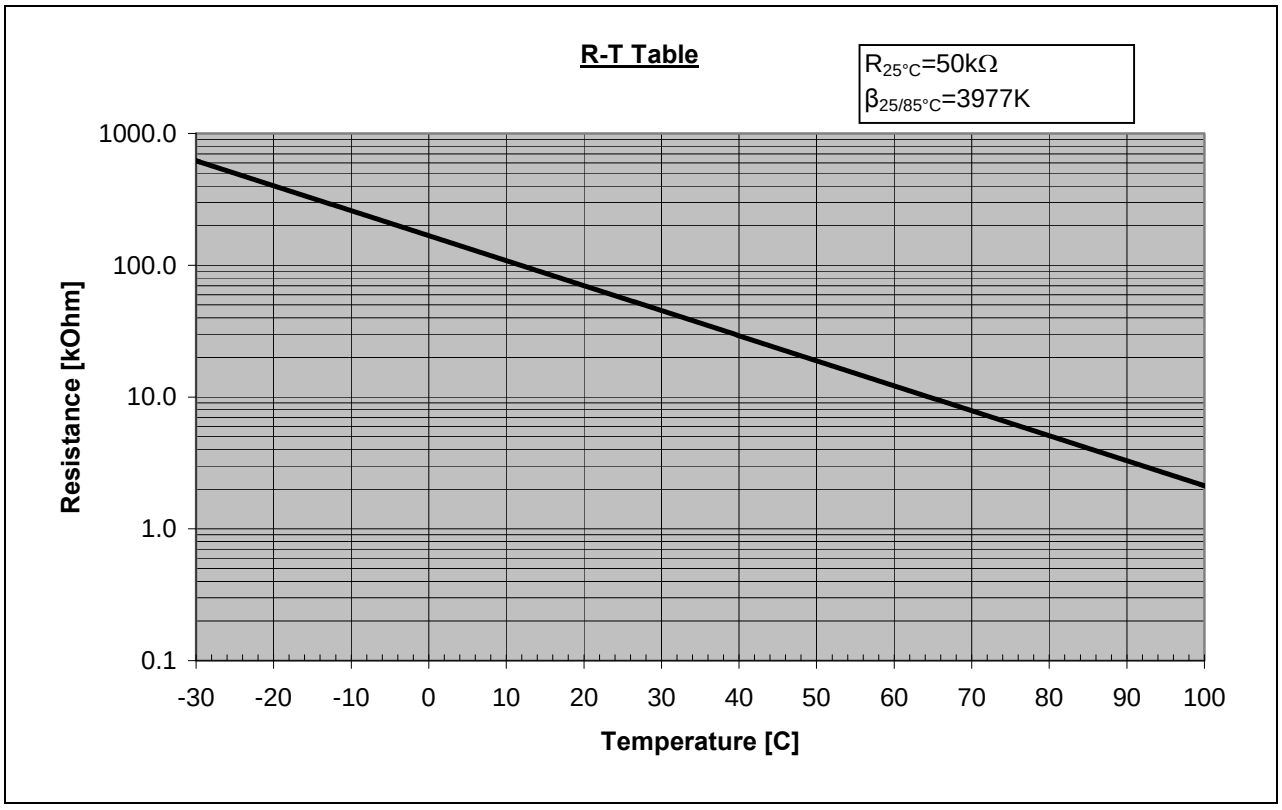
13.5.11 Checking Thermistors

1) Check Thermistor connections and wiring - Replace if needed.
2) Check sensor visually - Replace if needed.
3) Check thermistor sensor attachment to pipe (or other parts), specially pay attention to the spring holding the sensor towards its sensing part – repair if needed.
4) Disconnect the connector from the main board and check Thermistor resistance – should be according the charts below for each sensor. If not in range of 10%, replace thermistor.
5) If thermistor resistance check is OK but reading is still wrong, replace main board.

OAT, OCT, OMT, ICT, RAT, RGT, RLT, HST Chart



CTT Chart



Replacing thermistor - (*14.1.12.*)
Replacing main board - (*14.1.13.*)

13.5.12 Checking High Pressure Switch (HPS)

1) Disconnect HPS connector from the main board and check resistance between the 2 pins of the HPS connector – if shorted the HPS is OK, otherwise replace HPS.

Replacing HPS - (***14.1.10***)

13.5.13 Checking Low Pressure Switch (LPS)

1) Disconnect LPS connector from the main board and check resistance between the 2 pins of the HPS connector – if shorted the LPS is OK otherwise replace LPS.

Replacing LPS - (***14.1.10.***)

13.5.14 Checking Compressor Driver Communications

1) Disconnect the wire cable from the connectors on both sides (driver and main board), check the wiring continuity – Repair or replace wiring if needed.
2) Turn power ON and check if the red led in the driver is lighted. If OK and still no communications, replace main board. If the led is OFF, replace driver.

Replacing Outdoor Unit main board - (*14.1.13.*)
Replacing driver - (*14.1.15*)

13.5.15 Checking Indoor-Outdoor Unit Communications

1) Disconnect the wire cable from the connectors on both sides (main board and terminal block), check the wiring continuity – Repair or replace wiring if needed.
2) Check the continuity of the connecting wiring between indoor and outdoor units – Repair or replace wiring if needed.
3) Problem could be either in outdoor unit main board or indoor unit controller. To verify which the faulty one is, use additional boards and replace the one which is faulty.

Replacing Outdoor Unit main board - (*14.1.13.*)

13.5.16 Checking Indoor Unit Fuse on Controller

If the 3.15A fuse on the main Board is burnt check the fan or any other peripheral that can cause a short:
1) In case of a problematic peripheral - replace it.
2) In case no problematic peripheral replace the burnt fuse.
3) In case of frequent burning fuse, replace the controller.

13.5.17 Checking Indoor Unit Fan Motor

1) Check the motor wiring from the controller.
2) Check the motor capacitor for capacitance according to the capacitor name plate.
3) Check the resistance between each coil of the motor to be within normal range (30-300Ω).
4) Check resistance between each wire to ground to be above 5Ω.

13.5.18 Checking for electromagnetic interference (EMC problems)

13.5.18.1 EMC interference to the A/C unit

Locations most susceptible to interference
1) Locations near broadcast stations where there are strong electromagnetic waves.
2) Locations near amateur radio (short wave) stations.
3) Locations near electronic sewing machines and arc-welding machines.

Problem:
1) The unit may stop suddenly during operation.
2) Indicator lamps may flicker

Correction Actions:

The fundamental concept is to make the system less susceptible to noise by Insulation for noise or distance from the noise source.
1) Use shielded wires.
2) Move unit away from the noise source.

13.5.18.2 EMC interference to near by home appliances

Locations most susceptible to interference:

1) A television or radio is located near the A/C and A/C wiring.
2) The antenna cable for a television or radio is located close to the A/C and A/C wiring.
3) Locations where television and radio signals are weak.

Problem:

1) Noise appears in the television picture, or the picture is distorted.
2) Static occurs in the radio sound.

Correction Actions:

1) Select a separate power source.
2) Keep the A/C and A/C wiring at least 1 meter away from wireless devices and antenna cables.
3) Change the wireless device's antenna to a high sensitivity antenna.
4) Change the antenna cable to a BS coaxial cable.
5) Use a noise filter (for the wireless device).
6) Use a signal booster.

14. SERVICING

WARNING

TURN OFF ALL POWER SOURCE BEFORE HANDLING THE UNIT

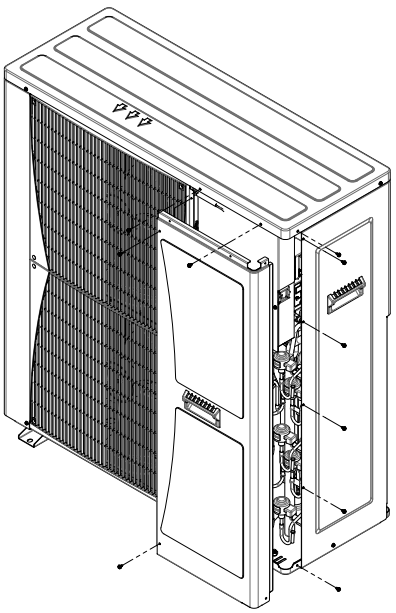
Note: To reassemble perform the procedures in reverse.

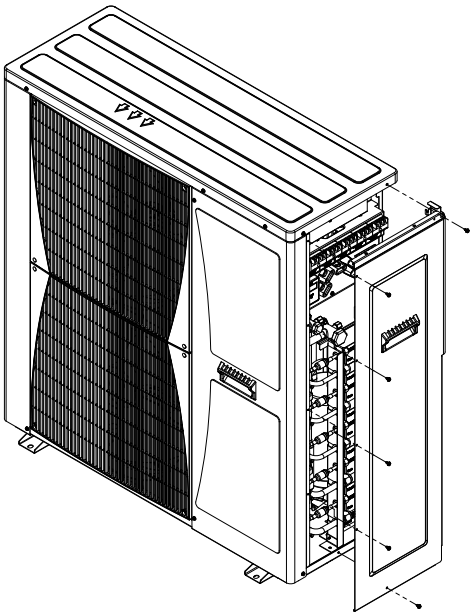
14.1 Removing Service (front) panel

Remove the fixing screws and slide the service (front) panel downwards to remove it.
Note: Do not flip the panel forward on the top side as not to damage the controller.

14.2 Removing side (Service) panel

Remove the fixing screws and slide the panel downwards to remove it.



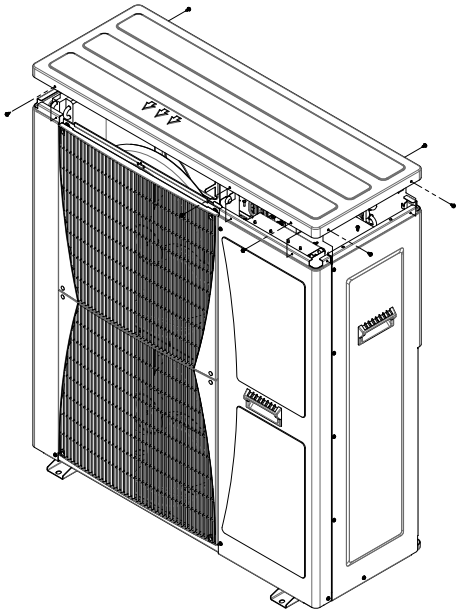


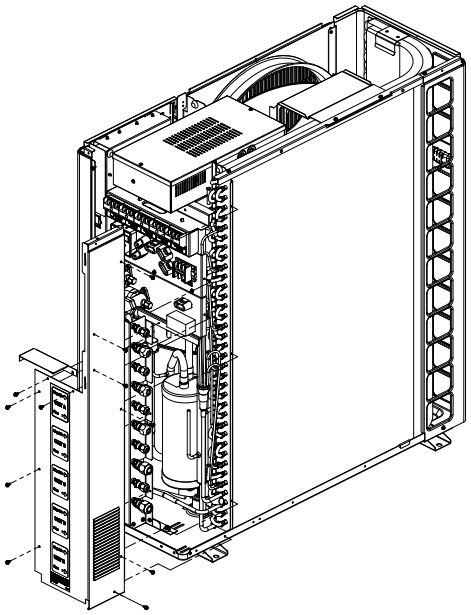
14.3 Removing top panel

Remove the 7 fixing screws and take out the top cover.

14.4 Removing side cover

Remove the fixing screws and take out the side cover.





14.5 Removing Air Outlet Grille(s)

Remove the fixing screws of the each grille.

14.6 Removing Outdoor Fan

1. Remove the air outlet grille according to *14.5*.
2. Remove the hex nut from the motor shaft. To ease the removal, use rubber hammer to hit on the hex nut while pulling out the fan.

NOTES for re-assemble the fan:

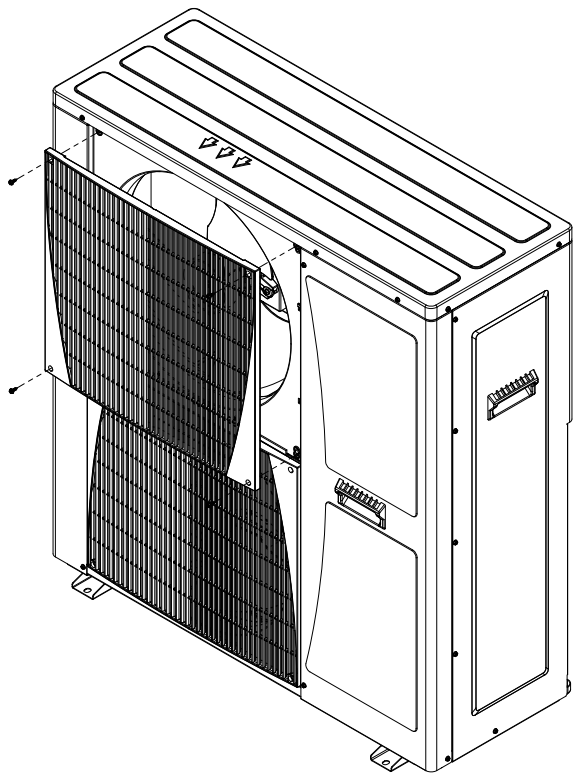
1. Insert the skidding protection part of fan boss in accordance with the cutting part of the motor shaft. Push hard until fan can no longer be inserted.
2. Fix the screw after with tightening Torque of 8.0 Nm (80kg.cm)
3. Fix back the air outlet grille.

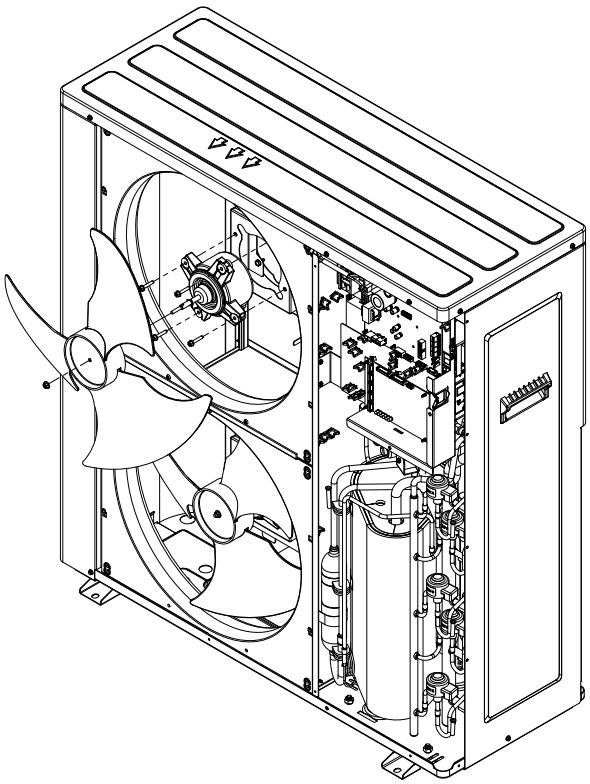
14.7 Removing Outdoor Fan Motor

1. Remove the outdoor fan according to *14.6.*
2. Disconnect the motor connector from the main board.
3. Cut the nylon ties holding the motor cable.
4. Remove the four (4) fixing screws for the motor.

NOTES for re-assemble the motor:

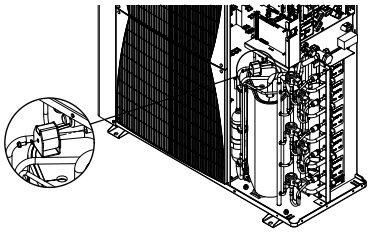
1. When mounting the motor, ensure the cables point downwards.
2. Fix the protection tube edge downward to ensure the water may not keep in it. Fix the motor wires with a nylon ties to prevent them obstructing the propeller fan.
3. When connecting the motor wire, check to ensure that the labels on the connectors match the PCB connectors.
4. Fix the motor wires with a nylon ties to prevent them obstructing the propeller fan.





14.8 Removing Reversing Valve coil

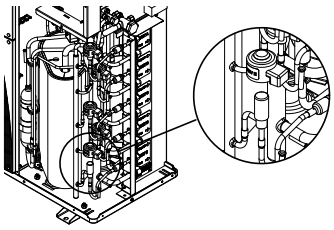
1. Remove the service front panel according to ***14.1***.
2. Check to ensure that LEDs and display board are OFF.
3. Disconnect the RV connector from the main board.
4. Remove the RV wires from the cable holders along the electronics box.
5. Remove the fixing screw from the reversing valve coil and take the coil out.



Removing Reversing Valve coil

14.9 Removing Expansion Valve coil

1. Remove the service front panel according to ***14.1***.
2. Check to ensure that LEDs and display board are OFF.
3. Disconnect the EEV connector from the Cinco board.
4. Remove the EEV wires from the cable holders along the electronics box.
5. Pull up the EEV coil.



Removing Expansion Valve coil

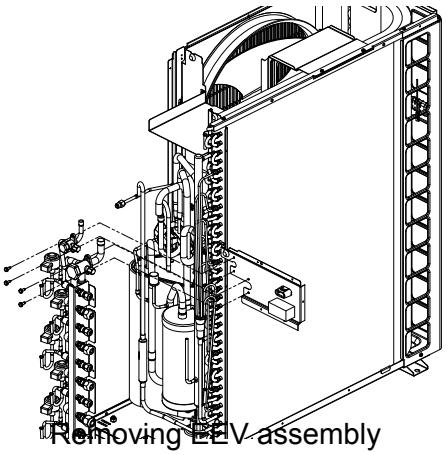
14.10 Removing Refrigeration parts

Refrigeation parts: Expansion valve, Reversing valve, high pressure switch, etc.

1. Remove the refrigerant from the unit by a pumping machine via the 2 valves.

Note: open the valves gradually and leave them only partially open for as long as the refrigerant exerts from the unit. Do not open the valves fully as not to loose any oil.

2. Remove the service panels according to ***14.1*** and ***14.2***.
3. Check to ensure that LEDs and display board are OFF.
4. Remove the part connector from the main board.
5. Remove the part wires from the cable holders along the electronics box and or the partition.
6. Remove the part from its pipes using burner.



Removing EEV assembly

14.11 Removing Compressor

1. Remove the refrigerant from the unit by a pumping machine via the 2 valves.

Note: open the valves gradually and leave them only partially open for as long as the refrigerant exerts from the unit. Do not open the valves fully as not to loose any oil.

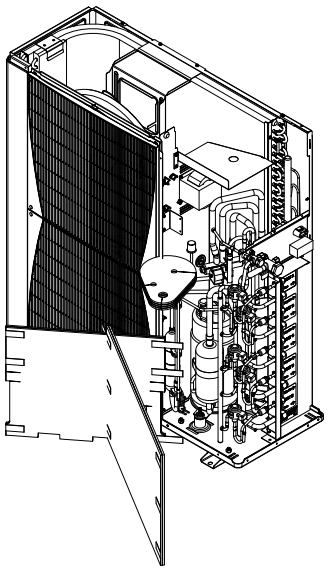
2. Remove the service panels according to ***14.1*** and ***14.2***.
3. Remove the side and top panels according to ***14.3*** and ***14.4***.
4. Check to ensure that LEDs and display board are OFF.
5. Take out the insulation surrounding the compressor and the cover.
6. Remove the compressor electrical cover. Use flat screw driver if required.
7. Remove the compressor wires from the terminals.
8. Remove the compressor wires from the cable holders along the partition and secure the wire on the top of the unit to avoid its burning by the burner.
9. Disconnect the suction pipe from the compressor.
10. Disconnect the discharge pipe from the compressor.

Remove the nuts fixing the compressor and lift the compressor.

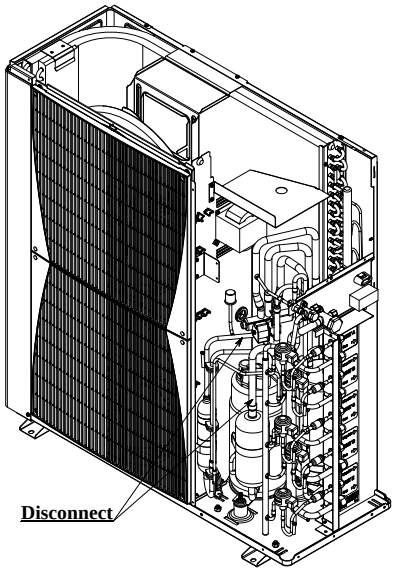
NOTES for re-assembling new compressor:

1. To prevent contamination of the refrigerant with water or foreign particles, do not expose open pipes to atmosphere for long periods. If necessary, seal pipe ends using caps or tape.
2. Remove the caps for the new compressor just before replacing the compressor. Seal suction and discharge pipe using tape when mounting to prevent the foreign particles entering the compressor.

Check to ensure each wire color goes to correct compressor terminal. If wrongly connected, the compressor may fail due to reverse rotation.



Removing Compressor Insulation



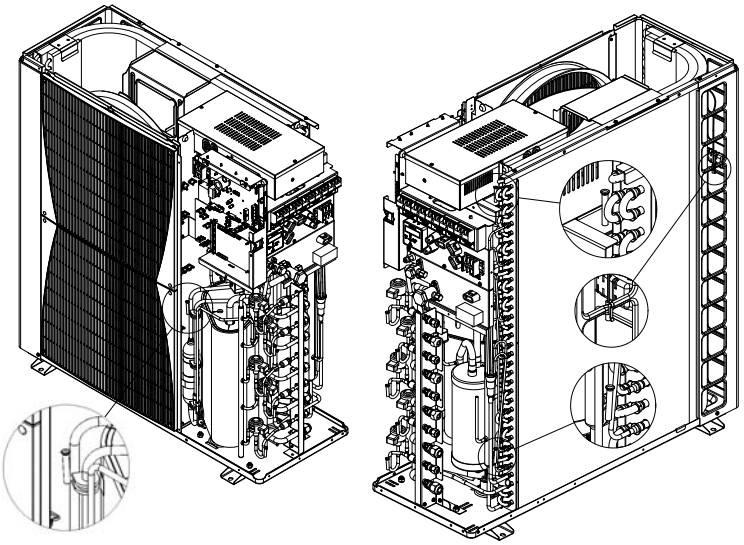
Removing Compressor

14.12 Removing Thermistors

1. Remove the service panels according to ***14.1*** and ***14.2.***
2. Remove the side and top panels according to ***14.3*** and ***14.4***.
3. Check to ensure that LEDs and display board are OFF.
4. Disconnect the thermistor connector from the main board.
5. Remove the thermistor wires from the cable holders along the electronics box.
6. Cut the nylon ties holding the wires to the pipes.
7. Pull up the spring from the housing while pulling the thermistor.

Notes for re-assemble the thermistor:

1. Make sure the spring is inserted first and is facing the tube to be attched to.
2. hold the thermistor wires to the tube with nylon tie holding both the wires and the protective sleeve.



Removing Thermistors

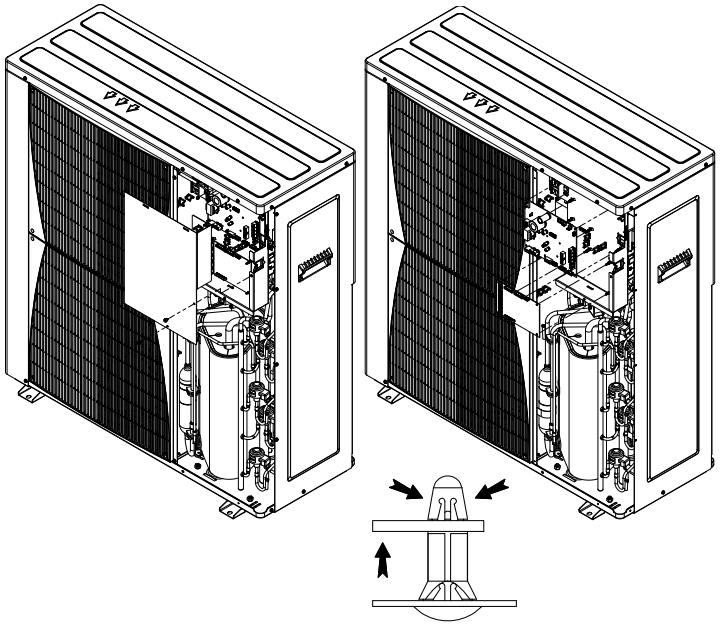
14.13 Removing main boards

1. Remove the service panels according to ***14.1*** and ***14.2.***
2. Check to ensure that LEDs and display board are OFF.
3. Disconnect all connectors from the main boards.
4. Squeeze the spacers head with Long-Nose Pliers and pull out the board.

Note: It might be easier to remove the main board panel first and than pull out the board from its spacers.

Notes for re-assemble the main board:

1. Make sure to connect all the connectors into the right locations. If incorrectly connected, malfunction or damage to the electrical parts may occur.
2. Hold the wires to the cable holders.
3. Ensure to set all the dip switches to the same configuration as the original.



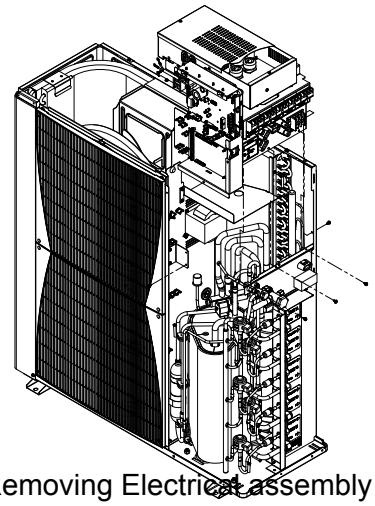
Removing main board

14.14 Removing Electrical assembly

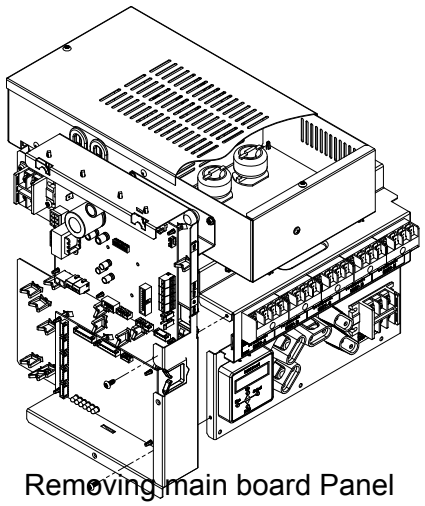
1. Remove the service panels according to ***14.1*** and ***14.2***.
2. Remove the side and top panels according to ***14.3*** and ***14.4***.
3. Check to ensure that LEDs and display board are OFF.
4. Disconnect the following connectors from the main board: RV, thermistors, HPS,LPS and EEVs.
5. Un plug the compressor electrical wire.
6. Un screw the chock terminals.
7. Remove the screws fixing the electrical box to the front fan panel, the partition and the side cover.
8. Pull up the box.

Notes for re-assemble the Electrical assembly:

1. Make sure to connect all the connectors into the right locations. If incorrectly connected, malfunction or damage to the electrical parts may occur.
2. Hold the wires to the cable holders.



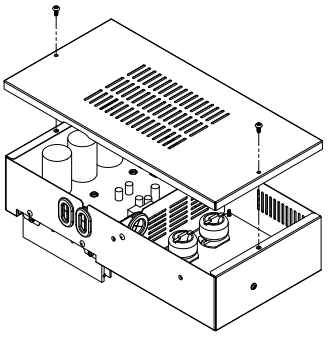
Removing Electrical assembly



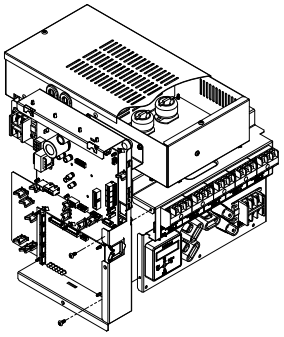
Removing main board Panel

14.15 Removing driver module

1. Remove the electrical assembly according to ***14.14***.
2. Remove the screws fixing the main board panel to the assembly and take the panel out.
3. Remove the screws fixing the terminal panel to the assembly and take the panel out.
4. Disconnect all the wires from the driver terminals and the communication connector.



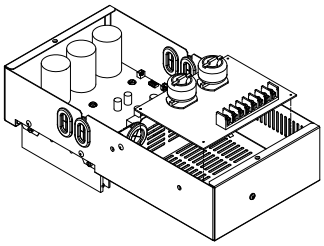
Removing driver cover



Removing terminal panel

14.16 Removing Line Filter board

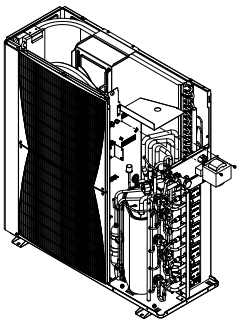
1. Perform the driver module removal procedure in ***14.15***.
2. Open driver assembly cover.
3. Release all wires from the line filter.
4. Squeeze the 4 spacers head with Long-Nose Pliers and pull out the board.



Removing filter

14.17 Removing Chocks Coils

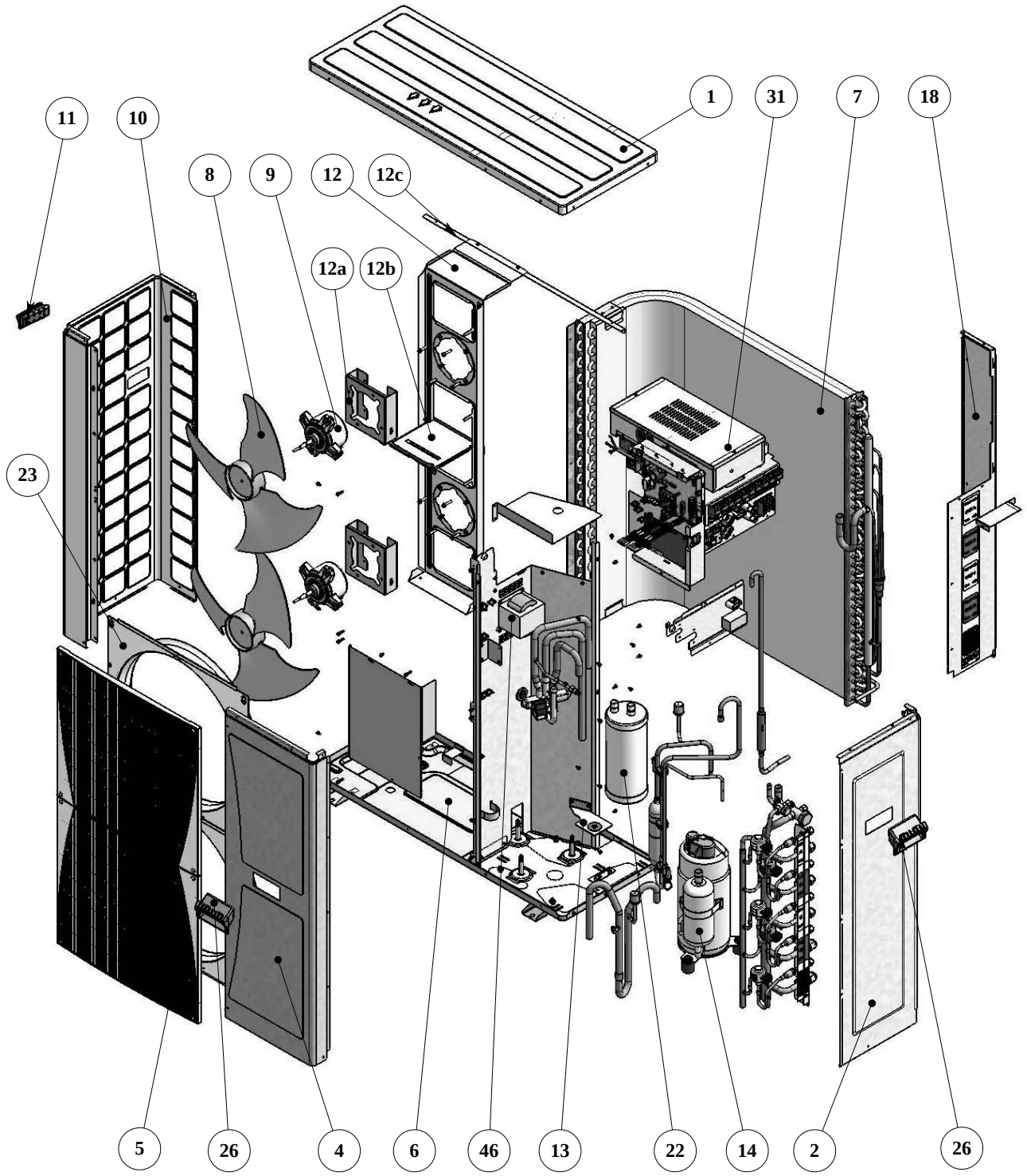
1. Remove the chock coil wires from the chock terminal block.
2. Remove the 2 screws to release the chock coil from the partition.



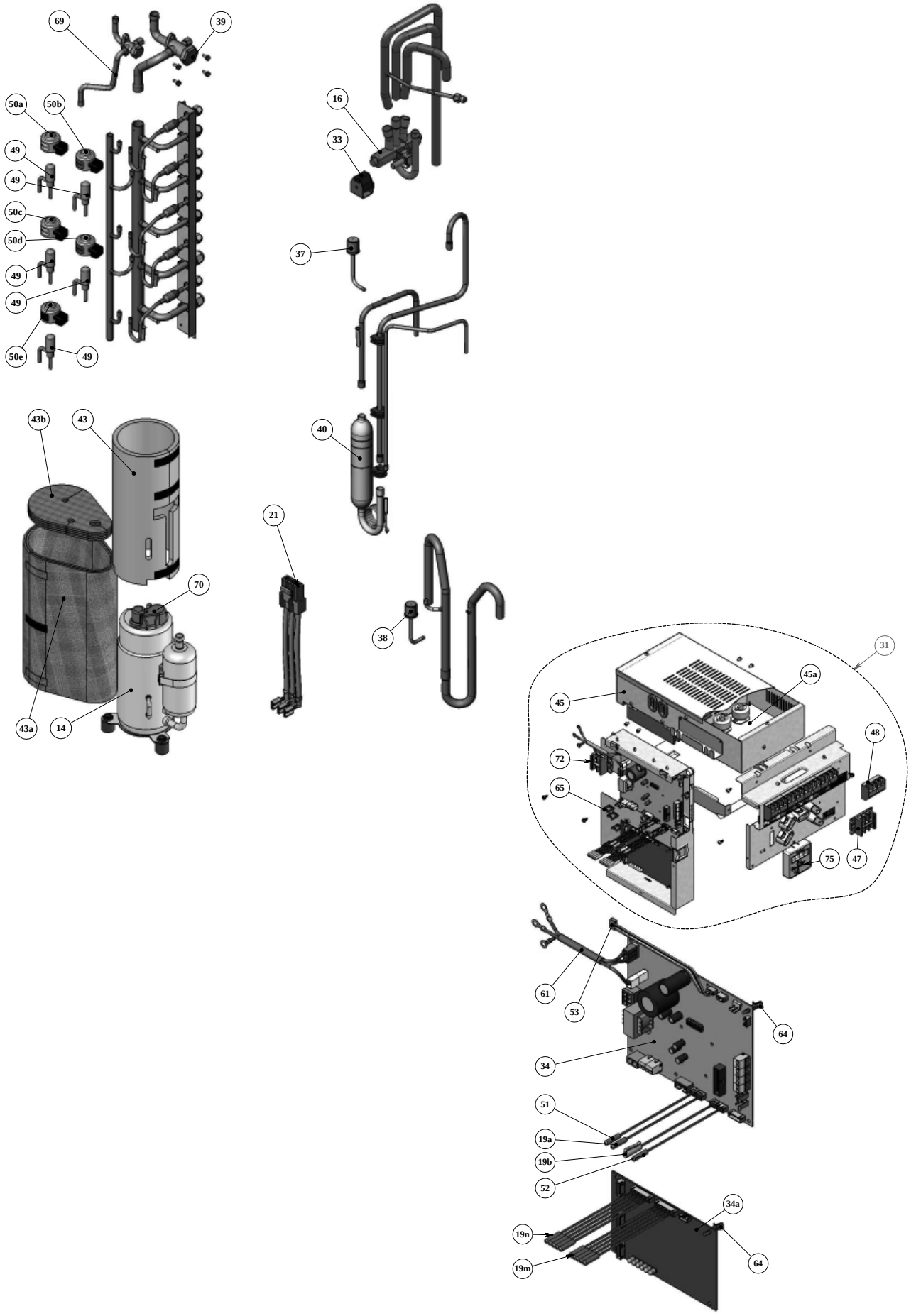
Removing Chocks Coils

15. EXPLODED VIEWS AND SPARE PARTS LISTS

15.1 Outdoor Unit: Cinco 100 DCI



15.2 Outdoor Unit: Cinco 100 DCI



15.3 Outdoor Unit: CINCO 100 DCI => SPARE PART LIST

SP No.	Item	Description	Quantity
1	437045	UPPER COVER EL13 OU LARGE	1
2	425215	Side cover CINCO	1
4	425226	FRONT PANEL OU10 CINCO	1
5	439662	GRILLE OU10	2
6	417200	NEW BASE ASSY OU10,12 4,6HP DC	1
7	425400	Coil OU10 4HP 2r GR HDR R410A	1
8	439650	AXIAL FAN D400*112	2
9	414310	DC MOTOR 50W OU10 DCI 4HP	2
10	417223	Side net panel N OU10	1
11	436358	OU LEADING HANDLE	1
12	439657	MOTOR SUPPORT OU10	1
13	425216	Accumulator support CINCO	1
14	460080000R	COMPRESSOR C-7RVN153H0W 808510	1
16	442507	VALVE V3-5/8 RC "U" TUBE R410A	1
18	425212	Side panel CINCO	1
21	414760	COMPRESSOR WIRING L800	1
22	452783200	SUCTION ACCUMULATOR 4"x5/8" 5L	1
23	439661	AIR OUTLET RING OU10	2
26	436352	RAISING HANDLE OU10	2
31	425700	Controller assy DCI OU10 4HP C	1
33	442466	VALVE COIL L700 MOLEX-SANHUA	1
34	425734	DCI CINCO ODU Main Board ASSY	1
37	416740	HP Switch 4.2/3.7 Mpa(g)	1
38	417742	LP Switch 0.15/0.2 Mpa(g)	1
39	425550	SERVICE VALVE 5/8F 3 WAY (HEX	1
40	460431	OIL SEPARATOR L210 R410A	1
43	414600	COMPRESSOR INSULATION DCI 4HP	1
45	467300226R	DCI 4HP Driver Assy	1
46	417715	PFC Chocks 6HP and 4HP DCR	1
47	425721	Terminal block 3P 32A	1
48	425722	Terminal block 4P 32A	5
49	4526827	EEV CAM-BD15 FKS-1	5
51	416751	OCT-THERMISTOR+CAP WTH CONNECT	1
52	416752	CTT-THERMISTOR+CAP WTH CONNECT	1
53	417781	Cable Driver Communication	1
61	416774	CABLE CONTROLLER INPUT -OUT	1
64	414910	P.C SPACER LCS-9	6
64	414910	P.C SPACER LCS-9	5
65	416910	CABLE HOLDER	7
65	416910	CABLE HOLDER	4
65	416910	CABLE HOLDER	14
69	425551	SERVICE VALVE 3/8F 3 WAY (HEX	1
70	414903	COMPRESSOR SANYO DCI TERMINAL	1
72	414716	Terminal Block 2P 32Amp	1
75	425934	HMI box assy	1
12a	414225	Motor support adaptor OU10 4HP	2
12b	414226	Motor support flange OU-10	1
12c	414229	Motor support clamp bracket OU	1
19a	434716	THERMISTOR+CAP WTH CONNECTOR L	1
19b	402741	THERMISTOR WTH CONNECTOR L1250	1
19m	425751	THERMISTOR+CAP WTH CONNECTOR R	1
19n	425752	THERMISTOR+CAP WTH CONNECTOR R	1
34a	425733	Cinco Board Assembly	1
43a	414601	COMPRESSOR 2nd INSULATION DCR	1
43b	414602	COMPRESSOR COVER INSULATION DC	1
45a	467300251R	DCI 4HP FILTER BD	1
50a	452682802	EEV COIL CAM-MD12FKS-33R	1
50b	452682800	EEV COIL CAM-MD12FKS-31R	1
50c	452682801	EEV COIL CAM-MD12FKS-32R	1
50d	452682803	EEV COIL CAM-MD12FKS-34R	1
50e	452682804	EEV COIL CAM-MD12FKS-38R (COMM	1

16. OPTIONAL ACCESSORIES

16.1 RCW Wall Mounted Remote Control

16.1.1 The RCW wall mounted remote control can be fitted to a large range and models, It can be used as IR (wirless mode) or wired controler.the RCW can control up to15 indoor units using the same settings (on its wired aplication).

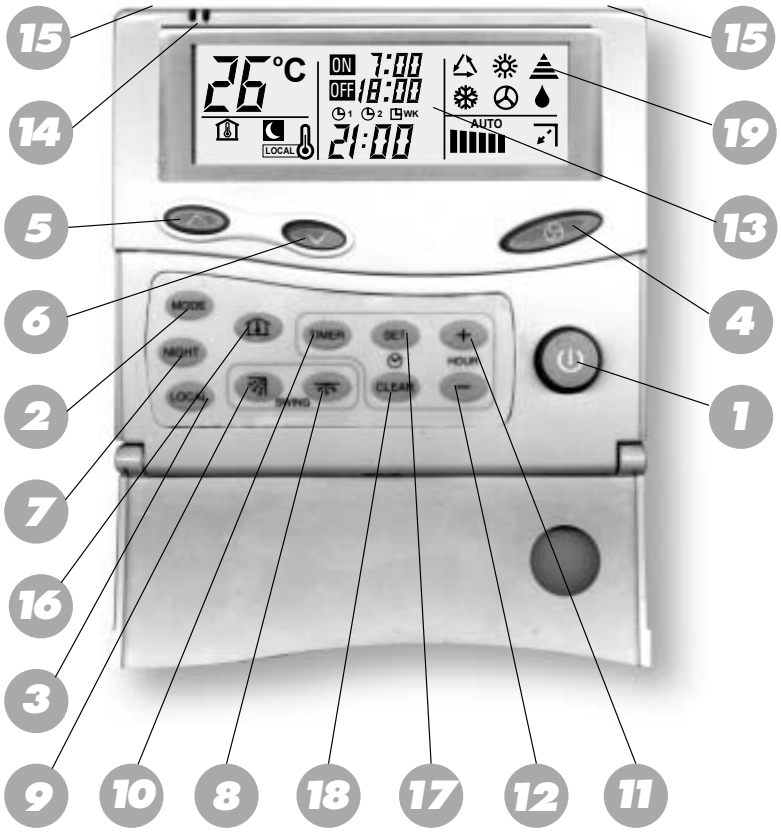
The max wiring length between the controller to the last indoor unit is 300m. for application on WNG LED indoor units an additional interface PCB is needed.

Ordering code no':

RCW – 436195
WNG add' PCB - SP000000290.

REMOTE CONTROL

1. START / STOP button
2. Operation mode selection button COOLING, HEATING, AUTO COOL / HEAT, DRY, FAN.
3. LOCAL temperature sensing button
4. FAN SPEED and AUTO FAN button
5. Room temperature UP button
6. Room temperature DOWN Button
7. NIGHT button
8. Airflow direction MANUAL positioning cor
9. Airflow direction AUTO-CONTROL buttor
10. TIMER button
11. TIMER UP button
12. TIMER DOWN button
13. LCD operation display
14. LOCAL sensor
15. Infrared signal transmitter
16. ROOM temperature button
17. TIMER SET button
18. TIMER CLEAR button
19. Transmission sign

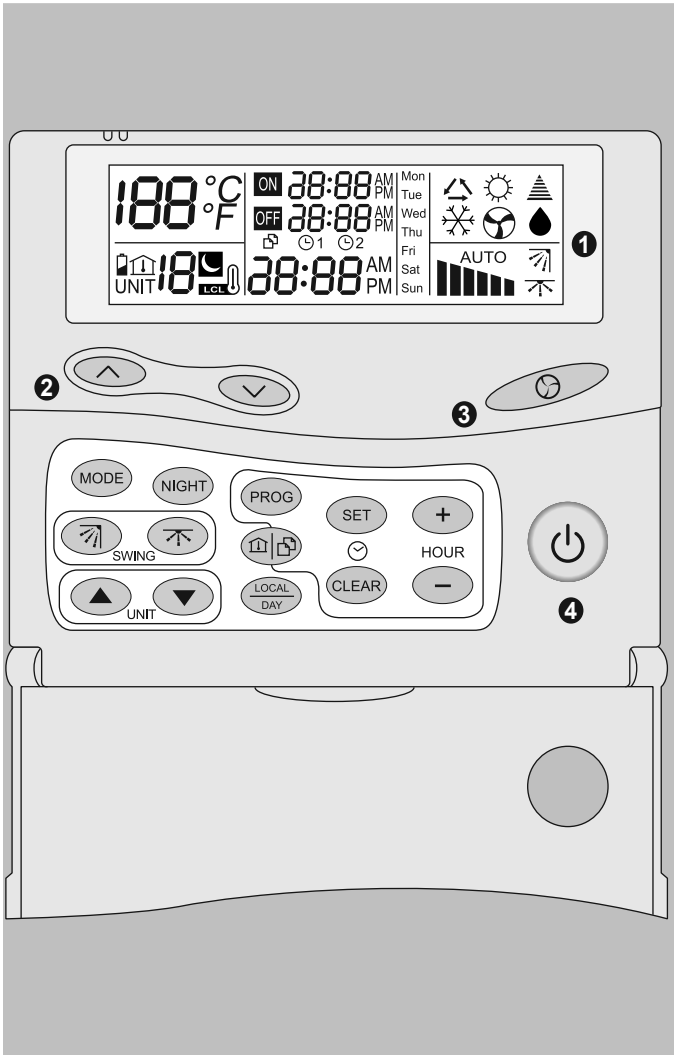


16.2 RCW2 Wall Mounted Remote Control

16.2.1 The RCW2 wall mounted remote controler is a wired controler that can provide affective controling management up to 15 different settings and temp' zones.

The RCW2 can be connected up to a max' of 32 units,allowing a max wiring length of 1000m for application on WNG LED indoor units an additional interface PCB is needed.

Ordering code no':
RCW2 – SP000000081
WNG add' PCB - SP000000290



❶ Display screen.
❷ Keys for raising and lowering the set temperature.
❸ Ventilation mode selection :
- Low speed.
- Medium speed.
- High speed.
- AUTO : Automatic speed selection.

❹ ON / Standby.
SET Accessing the time setting mode.
\+ Advancing the time setting.
– Retarding the time setting.
CLEAR Clearing memory of programmed time settings in programming mode.
LOCAL DAY Day of the week selection key or sending "I feel" local temperature setting.
PROG Programming mode key.
"Copy" key, enabling zone parameters to be duplicated for other zones.
MODE Operating mode selection.
NIGHT Day /Night key.
▲ Current zone setting: zone above.
▼ Current zone setting: zone below.
Louver : step by step or horizontal.
Louver : vertical.

16.3 Base Heater

PN: 439878

Before starting the heaters connection verify that the unit is disconnected from main power supply!!

BASE HEATERT INSTALLATION INSTRUCTIONS

Check the installation manual for further information

The kit includes:

1. One 70W PT heating element.
2. One Heater holder.
3. Two magnets for assemble of heater to outdoor base.
4. 4 Strips.

Instructions:

1. Open the outdoor unit electrical cover and service panel.
2. Connect the base heater wires to connections marked as “BH” on the main controller (refer to Figure 1).
3. Route the wires into the cable holders and through the grommet and attach the wires with strips to other wires as per Figure 1 & 2.
4. Locate the heater under the outdoor base with the magnets according to Figure 3.
5. Attach with strips the wires to the pipes and the base unit.
6. Close the outdoor electrical cover and service panel.

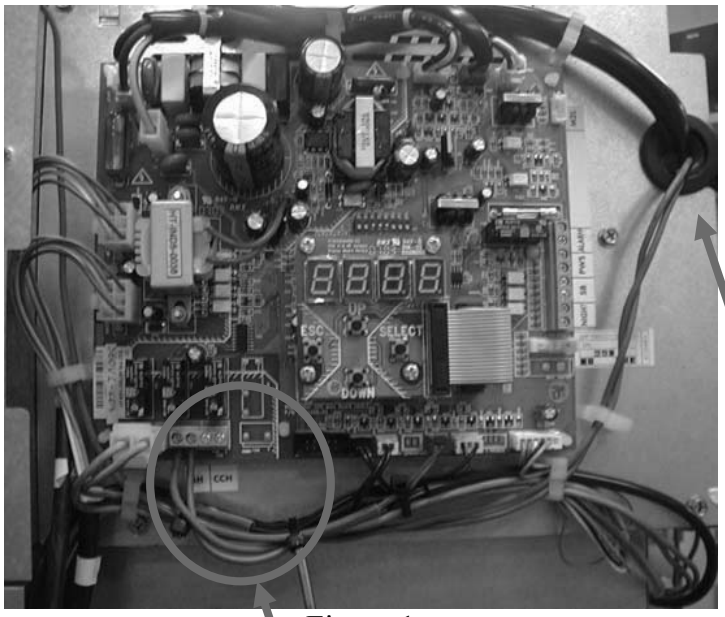


Figure 1

Figure 2

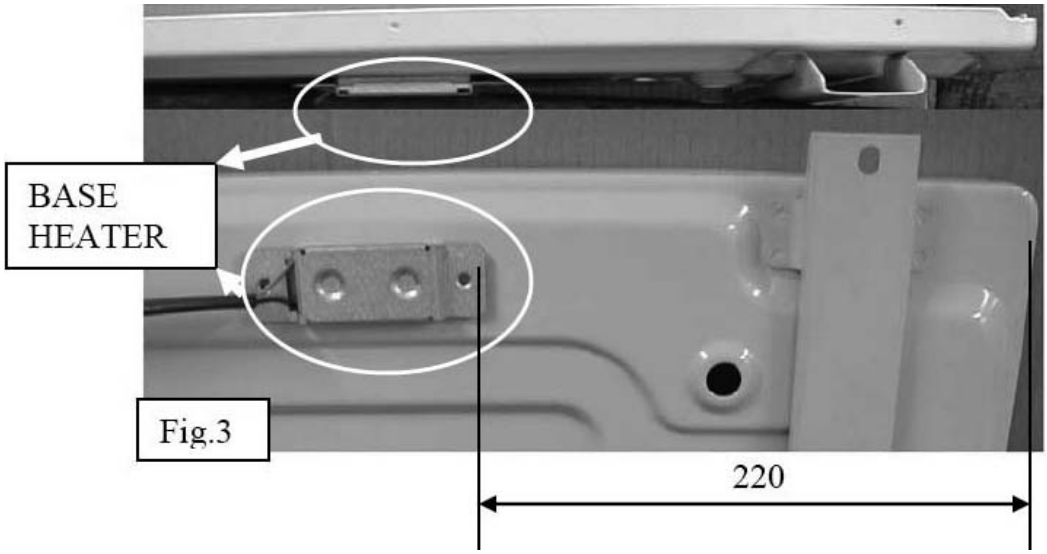


Fig.3

16.4 Crank Case Heater

PN: 190443

Before starting the heaters connection verify that the unit is disconnected from main power supply!!

CRANK CASE HEATERS INSTALLATION INSTRUCTIONS

Check the installation manual for further information

The kit includes:

1. One 50W heating element.
2. One spring holder.

Instructions:

1. Open the outdoor unit electrical cover and service panel.
2. Remove the compressor insulation layers.
3. Locate the heater around the compressor and close with the spring according to Figure 1.
4. Route the wires into the cable holders as per Figure 2.
5. Connect the heater wires to connections marked as “CCH” on the main controller (refer to Figure 3).
6. Attach the wires with strips to other wires as per Figure 3.
7. Put back the compressor insulation layers.
8. Close the outdoor electrical cover and service panel.


Figure 1


Figure 3

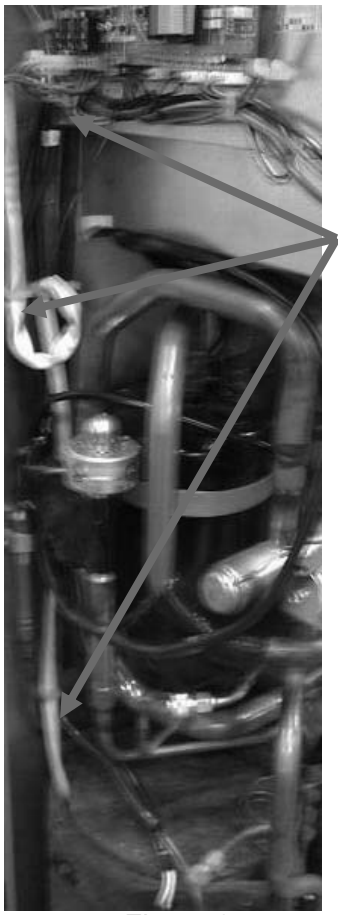


Figure 2

16.5 Room Thermostat

Room Thermostat kit PN: 442298
Thermistor with connector PN: 442296

Before starting the connection verify that the unit is disconnected from main power supply!!

ROOM THERMOSTAT INSTALLATION INSTRUCTIONS

Check the installation manual for further information

Supplied components list:

No.	Item	QTY	PN
1	Thermostat box	1	442298
2	Shielded cable	1	
3	Screws and plugs	2	
4	LABEL	1	
5	BAG	1	

1	Extension cable with connector	1	442296

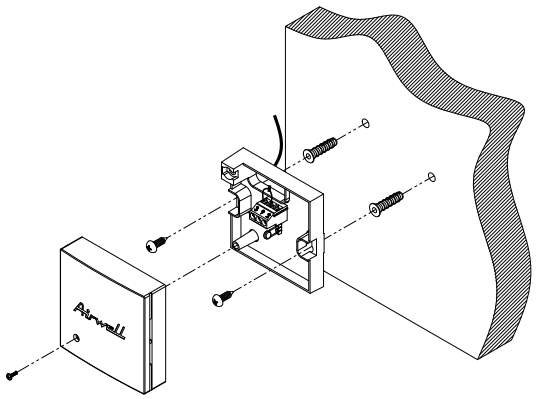


Figure 1

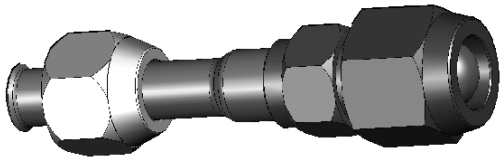
Choosing location of installation:

- Away from air drafts
- Away from direct sun light rays
- Average height – 1.5 meters above floor
- Away from any heat source

1. Install the thermostat box on the wall according the above location preferences. See figure 1.
2. Connect the shielded cable supplied to the thermostat box into points 3 and 9 (non polarity).
3. Disconnect the existing “RM” sensor from the indoor unit main controller.
4. Connect the other end of “RM” extension cable to the the sheilded cable. Also connect the grounding fork terminal into the grounding terminal point.
5. In the indoor unit main controller, move the dip switch #2 to OFF position.

16.6 Tube Diameter Transitions

Selling Code	Pipe diameter	
452962900	φ12.7 (1/2”) → φ9.52 (3/8”)	Allow connection of size 7/9/12 to points “D” and “E”
425570	φ12.7 (1/2”) → φ15.9 (5/8”)	Allow connection of size 21/24 to points “D” and “E”
425571	φ6.35 (1/4”) → φ9.52 (3/8”)	Allow connection of size 21/24 to points “D” and “E”



APPENDIX A

INSTALLATION AND OPERATION MANUAL

► **INSTALLATION MANUAL CINCO 100 DCI**