

# SERVICE MANUAL



Outdoor unit	Indoor unit
AOU48RLXFZ	ASU7RLF
	ASU9RLF
Branch box	ASU12RLF
UTP-PU03A	ASU18RLF
UTP-PU03B	ASU24RLF
	AUU9RLF
Separation tube	AUU12RLF
UTP-SX248A	AUU18RLF
	UTG-CCGF
	ARU9RLF
	ARU12RLF
	ARU18RLF
	ARU24RLF

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# SPECIFICATIONS

## OUTDOOR UNIT

### ELECTRICAL DATA

TYPE		Hybrid flex inverter system	
MODEL NAME		AOU48RLXFZ	
POWER SUPPLY		208 V / 230 V	
FREQUENCY		60 Hz	
CAPACITY	Cooling	Rated	48,000 Btu/h (14.1 kW)
		Max	51,100 Btu/h
	Heating	Rated	54,000 Btu/h (15.8 kW)
		Max	57,000 Btu/h
INPUT POWER	Cooling	Rated	5.27 kW
		Max.	5.98 kW
	Heating	Rated	4.83 kW
		Max.	5.98 kW
CURRENT	Cooling	Rated	23.4 A
		Max.	26.5 A
	Heating	Rated	21.4 A
		Max.	26.5 A

### FAN MOTOR

DISCRIMINATION		MFE-45WVN
SPEED	Cooling	890 r.p.m.
	Heating	910 r.p.m.
AIR FLOW	Cooling (Rated)	2,737 cfm (4,650 m3/h)
	Heating (Rated)	2,825 cfm (4,800 m3/h)
NOISE LEVEL	Cooling (Rated)	56 dB(A)
	Heating (Rated)	58 dB(A)

### COMPRESSOR AND REFRIGERANT

TYPE	Hermetic type, Inverter, 4 poles, 3-phase, DC motor, Twin Rotary
DISCRIMINATION	808 688 80(B)
WEIGHT	57.3 lbs (26.0 kg)
PRECHARGED REFRIGERANT	7.6 lbs (3,450 g)
REFRIGERANT TYPE	R410A

### MEASUREMENT

DIMENSIONS	H x W x D	36 x 38-1/4 x 14-5/8 inch (914 x 970 x 370 mm)
WEIGHT	Net / Shipping	216 lbs / 234 lbs (98 kg / 106 kg)

## BRANCH BOX

### ELECTRICAL DATA

MODEL NAME	UTP-PU03A (Primary) UTP-PU03B (Secondary)
MAX. COMBINATION	62,000 Btu/h
MIN. COMBINATION	7,000 Btu/h
POWER CONSUMPTION	10 W
RUNNING CURRENT	0.05 A

### MEASUREMENT

DIMENSIONS	H x W x D	7-5/8 x 17 x 14-5/8 inch (195 x 433 x 370 mm)
WEIGHT	Net / Shipping	20 lbs / 29 lbs (9 kg / 13 kg)

**INDOOR UNIT  
COMPACT WALL MOUNTED**

**ELECTRICAL DATA**

MODEL NAME		ASU7RLF	ASU9RLF	ARU12RLF
CAPACITY	Cooling (Rated)	7,000 Btu/h (2.04 kW)	9,000 Btu/h (2.64 kW)	12,000 Btu/h (3.51 kW)
	Heating (Rated)	8,100 Btu/h (2.37 kW)	10,200 Btu/h (3.00 kW)	13,500 Btu/h (3.96 kW)
POWER CONSUMPTION		15 W	17 W	22 W
RUNNING CURRENT		0.13 A	0.15 A	0.19 A
MOISTURE REMOVAL		1.7 Pints/h (0.8 L/h)	2.7 Pints/h (1.3 L/h)	3.8 Pints/h (1.8 L/h)

**FAN MOTOR**

DISCRIMINATION			MFD-12TYAN		
FAN SPEED	Cooling	High	1,050 r.p.m.	1,100 r.p.m.	1,200 r.p.m.
		Medium	950 r.p.m.	980 r.p.m.	1,050 r.p.m.
		Low	850 r.p.m.	850 r.p.m.	880 r.p.m.
		Quiet	710 r.p.m.	710 r.p.m.	710 r.p.m.
	Heating	High	1,050 r.p.m.	1,100 r.p.m.	1,200 r.p.m.
		Medium	950 r.p.m.	980 r.p.m.	1,050 r.p.m.
		Low	850 r.p.m.	850 r.p.m.	910 r.p.m.
		Quiet	720 r.p.m.	720 r.p.m.	720 r.p.m.
AIR FLOW	Cooling	High	330 cfm (560 m <sup>3</sup> /h)	353 cfm (600 m <sup>3</sup> /h)	388 cfm (660 m <sup>3</sup> /h)
		Medium	294 cfm (500 m <sup>3</sup> /h)	306 cfm (520 m <sup>3</sup> /h)	330 cfm (560 m <sup>3</sup> /h)
		Low	253 cfm (430 m <sup>3</sup> /h)	253 cfm (430 m <sup>3</sup> /h)	265 cfm (450 m <sup>3</sup> /h)
		Quiet	200 cfm (340 m <sup>3</sup> /h)	200 cfm (340 m <sup>3</sup> /h)	200 cfm (340 m <sup>3</sup> /h)
	Heating	High	330 cfm (560 m <sup>3</sup> /h)	353 cfm (600 m <sup>3</sup> /h)	388 cfm (660 m <sup>3</sup> /h)
		Medium	294 cfm (500 m <sup>3</sup> /h)	306 cfm (520 m <sup>3</sup> /h)	330 cfm (560 m <sup>3</sup> /h)
		Low	253 cfm (430 m <sup>3</sup> /h)	253 cfm (430 m <sup>3</sup> /h)	277 cfm (470 m <sup>3</sup> /h)
		Quiet	206 cfm (350 m <sup>3</sup> /h)	206 cfm (350 m <sup>3</sup> /h)	206 cfm (350 m <sup>3</sup> /h)
NOISE LEVEL	Cooling	High	36 dB(A)	37 dB(A)	40 dB(A)
		Medium	32 dB(A)	33 dB(A)	36 dB(A)
		Low	29 dB(A)	29 dB(A)	30 dB(A)
		Quiet	25 dB(A)	25 dB(A)	25 dB(A)
	Heating	High	36 dB(A)	37 dB(A)	40 dB(A)
		Medium	32 dB(A)	33 dB(A)	36 dB(A)
		Low	29 dB(A)	29 dB(A)	31 dB(A)
		Quiet	25 dB(A)	25 dB(A)	25 dB(A)

**MEASUREMENTS**

DIMENSIONS	H x W x D	11-1/16 x 31-1/16 x 8 inch (280 x 790 x 203 mm)
WEIGHT	Net / Shipping	18 lb. / 23 lb. (8.0 kg / 10.5 kg)

**INDOOR UNIT  
WALL MOUNTED**

**ELECTRICAL DATA**

MODEL NAME		ASU18RLF	ASU24RLF
CAPACITY	Cooling (Rated)	18,000 Btu/h (5.28 kW)	24,000 Btu/h (7.02 kW)
	Heating (Rated)	20,000 Btu/h (5.85 kW)	27,000 Btu/h (7.92 kW)
POWER CONSUMPTION		41 W	69 W
RUNNING CURRENT		0.32 A	0.53 A
MOISTURE REMOVAL		5.3 Pints/h (2.5 L/h)	5.9 Pints/h (2.8 L/h)

**FAN MOTOR**

DISCRIMINATION		MFD-50RON		
FAN SPEED	Cooling	High	1,250 r.p.m.	1,480 r.p.m.
		Medium	1,020 r.p.m.	1,220 r.p.m.
		Low	900 r.p.m.	1,020 r.p.m.
		Quiet	770 r.p.m.	900 r.p.m.
	Heating	High	1,250 r.p.m.	1,430 r.p.m.
		Medium	1,020 r.p.m.	1,220 r.p.m.
		Low	900 r.p.m.	1,020 r.p.m.
		Quiet	790 r.p.m.	900 r.p.m.
AIR FLOW	Cooling	High	542 cfm (920 m <sup>3</sup> /h)	659 cfm (1,120 m <sup>3</sup> /h)
		Medium	436 cfm (740 m <sup>3</sup> /h)	530 cfm (900 m <sup>3</sup> /h)
		Low	365 cfm (620 m <sup>3</sup> /h)	436 cfm (740 m <sup>3</sup> /h)
		Quiet	324 cfm (550 m <sup>3</sup> /h)	365 cfm (620 m <sup>3</sup> /h)
	Heating	High	542 cfm (920 m <sup>3</sup> /h)	647 cfm (1100 m <sup>3</sup> /h)
		Medium	436 cfm (740 m <sup>3</sup> /h)	530 cfm (900 m <sup>3</sup> /h)
		Low	365 cfm (620 m <sup>3</sup> /h)	436 cfm (740 m <sup>3</sup> /h)
		Quiet	324 cfm (550 m <sup>3</sup> /h)	365 cfm (620 m <sup>3</sup> /h)
NOISE LEVEL	Cooling	High	43 dB(A)	49 dB(A)
		Medium	37 dB(A)	42 dB(A)
		Low	33 dB(A)	37 dB(A)
		Quiet	31 dB(A)	33 dB(A)
	Heating	High	44 dB(A)	48 dB(A)
		Medium	37 dB(A)	42 dB(A)
		Low	33 dB(A)	37 dB(A)
		Quiet	31 dB(A)	33 dB(A)

**MEASUREMENTS**

DIMENSIONS	H x W x D	12-5/8 x 39-1/4 x 9 inch (320 x 998 x 228 mm)
WEIGHT	Net / Shipping	31 lb. / 40 lb. (14 kg / 18 kg)

**INDOOR UNIT  
COMPACT CASSETTE**

**ELECTRICAL DATA**

MODEL NAME		AUU9RLF	AUU12RLF	AUU18RLF
CAPACITY	Cooling (Rated)	9,000 Btu/h (2.64 kW)	12,000 Btu/h (3.51 kW)	18,000 Btu/h (5.28 kW)
	Heating (Rated)	10,200 Btu/h (3.00 kW)	13,500 Btu/h (3.96 kW)	20,000 Btu/h (5.85 kW)
POWER CONSUMPTION		18 W	23 W	39 W
RUNNING CURRENT		0.15 A	0.19 A	0.30 A
MOISTURE REMOVAL		2.5 Pints/h (1.2 L/h)	3.2 Pints/h (1.5 L/h)	4.2 Pints/h (2.0 L/h)

**FAN MOTOR**

DISCRIMINATION			MFF-24VV L		
FAN SPEED	Cooling	High	590 r.p.m.	660 r.p.m.	790 r.p.m.
		Medium	540 r.p.m.	580 r.p.m.	660 r.p.m.
		Low	490 r.p.m.	520 r.p.m.	570 r.p.m.
		Quiet	440 r.p.m.	460 r.p.m.	460 r.p.m.
	Heating	High	590 r.p.m.	650 r.p.m.	840 r.p.m.
		Medium	540 r.p.m.	580 r.p.m.	750 r.p.m.
		Low	490 r.p.m.	520 r.p.m.	650 r.p.m.
		Quiet	440 r.p.m.	460 r.p.m.	500 r.p.m.
AIR FLOW	Cooling	High	318 cfm (540 m <sup>3</sup> /h)	359 cfm (610 m <sup>3</sup> /h)	441 cfm (750 m <sup>3</sup> /h)
		Medium	288 cfm (490 m <sup>3</sup> /h)	312 cfm (530 m <sup>3</sup> /h)	359 cfm (610 m <sup>3</sup> /h)
		Low	259 cfm (440 m <sup>3</sup> /h)	277 cfm (470 m <sup>3</sup> /h)	306 cfm (520 m <sup>3</sup> /h)
		Quiet	230 cfm (390 m <sup>3</sup> /h)	241 cfm (410 m <sup>3</sup> /h)	241 cfm (410 m <sup>3</sup> /h)
	Heating	High	318 cfm (540 m <sup>3</sup> /h)	359 cfm (610 m <sup>3</sup> /h)	471 cfm (800 m <sup>3</sup> /h)
		Medium	288 cfm (490 m <sup>3</sup> /h)	312 cfm (530 m <sup>3</sup> /h)	418 cfm (710 m <sup>3</sup> /h)
		Low	259 cfm (440 m <sup>3</sup> /h)	277 cfm (470 m <sup>3</sup> /h)	353 cfm (600 m <sup>3</sup> /h)
		Quiet	230 cfm (390 m <sup>3</sup> /h)	241 cfm (410 m <sup>3</sup> /h)	265 cfm (450 m <sup>3</sup> /h)
NOISE LEVEL	Cooling	High	33 dB(A)	37 dB(A)	42 dB(A)
		Medium	31 dB(A)	33 dB(A)	37 dB(A)
		Low	29 dB(A)	31 dB(A)	33 dB(A)
		Quiet	27 dB(A)	28 dB(A)	29 dB(A)
	Heating	High	34 dB(A)	37 dB(A)	44 dB(A)
		Medium	32 dB(A)	33 dB(A)	40 dB(A)
		Low	29 dB(A)	31 dB(A)	37 dB(A)
		Quiet	27 dB(A)	28 dB(A)	30 dB(A)

**MEASUREMENTS**

DIMENSIONS	H x W x D	9-21/32 x 22-7/16 x 22-7/16 inch (245 x 570 x 570 mm)
WEIGHT	Net / Shipping	33 lb. / 40 lb. (15 kg / 18 kg)

**PANEL**

**MEASUREMENTS**

MODEL NAME	UTG-CCGF	
DIMENSIONS	H x W x D	1-15/16 x 27-9/16 x 27-9/16 inch (49 x 700 x 700 mm)
WEIGHT	Net / Shipping	5.7 lb. / 10 lb. (2.6 kg / 4.5 kg)

INDOOR UNIT  
SLIM DUCT

ELECTRICAL DATA

MODEL NAME		ARU9RLF	ARU12RLF
CAPACITY	Cooling (Rated)	9,000 Btu/h (2.64 kW)	12,000 Btu/h (3.51 kW)
	Heating (Rated)	10,200 Btu/h (3.00 kW)	13,500 Btu/h (3.96 kW)
POWER CONSUMPTION		49 W	58 W
RUNNING CURRENT		0.30 A	0.35 A
MOISTURE REMOVAL		2.7 Pints/h (1.3 L/h)	3.8 Pints/h (1.8 L/h)

FAN MOTOR

DISCRIMINATION			MFG-14WV	
FAN SPEED	Cooling	High	1,260 r.p.m.	1,340 r.p.m.
		Medium	1,160 r.p.m.	1,240 r.p.m.
		Low	1,060 r.p.m.	1,140 r.p.m.
		Quiet	960 r.p.m.	1,030 r.p.m.
	Heating	High	1,260 r.p.m.	1,340 r.p.m.
		Medium	1,160 r.p.m.	1,240 r.p.m.
		Low	1,060 r.p.m.	1,140 r.p.m.
		Quiet	960 r.p.m.	1,030 r.p.m.
AIR FLOW	Cooling	High	353 cfm (600 m <sup>3</sup> /h)	383 cfm (650 m <sup>3</sup> /h)
		Medium	324 cfm (550 m <sup>3</sup> /h)	353 cfm (600 m <sup>3</sup> /h)
		Low	294 cfm (500 m <sup>3</sup> /h)	324 cfm (550 m <sup>3</sup> /h)
		Quiet	265 cfm (450 m <sup>3</sup> /h)	283 cfm (480 m <sup>3</sup> /h)
	Heating	High	353 cfm (600 m <sup>3</sup> /h)	383 cfm (650 m <sup>3</sup> /h)
		Medium	324 cfm (550 m <sup>3</sup> /h)	353 cfm (600 m <sup>3</sup> /h)
		Low	294 cfm (500 m <sup>3</sup> /h)	324 cfm (550 m <sup>3</sup> /h)
		Quiet	265 cfm (450 m <sup>3</sup> /h)	283 cfm (480 m <sup>3</sup> /h)
NOISE LEVEL	Cooling	High	28 dB(A)	29 dB(A)
		Medium	27 dB(A)	28 dB(A)
		Low	26 dB(A)	27 dB(A)
		Quiet	25 dB(A)	26 dB(A)
	Heating	High	28 dB(A)	29 dB(A)
		Medium	26 dB(A)	28 dB(A)
		Low	25 dB(A)	27 dB(A)
		Quiet	24 dB(A)	24 dB(A)

MEASUREMENTS

DIMENSIONS	H x W x D	7-25/32 x 27-9/16 x 24-13/32 inch (198 x 700 x 620 mm)
WEIGHT	Net / Shipping	41 lb. / 55 lb. (19 kg / 25 kg)

INDOOR UNIT  
SLIM DUCT

ELECTRICAL DATA

MODEL NAME		ARU18RLF	ARU24RLF
CAPACITY	Cooling (Rated)	18,000 Btu/h (5.28 kW)	24,000 Btu/h (7.02 kW)
	Heating (Rated)	20,000 Btu/h (5.85 kW)	27,000 Btu/h (7.92 kW)
POWER CONSUMPTION		73 W	111 W
RUNNING CURRENT		0.44 A	0.66 A
MOISTURE REMOVAL		4.6 Pints/h (2.2 L/h)	5.3 Pints/h (2.5 L/h)

FAN MOTOR

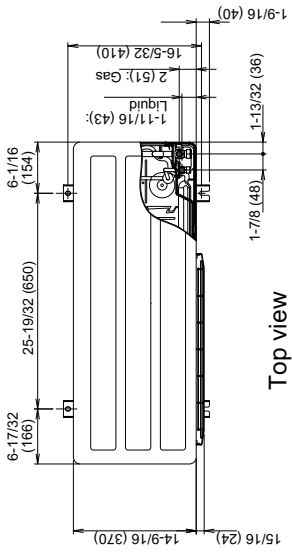
DISCRIMINATION			MFG-24WV	
FAN SPEED	Cooling	High	1,380 r.p.m.	1,460 r.p.m.
		Medium	1,300 r.p.m.	1,360 r.p.m.
		Low	1,220 r.p.m.	1,260 r.p.m.
		Quiet	1,140 r.p.m.	1,180 r.p.m.
	Heating	High	1,380 r.p.m.	1,460 r.p.m.
		Medium	1,300 r.p.m.	1,360 r.p.m.
		Low	1,220 r.p.m.	1,260 r.p.m.
		Quiet	1,140 r.p.m.	1,180 r.p.m.
AIR FLOW	Cooling	High	554 cfm (940 m <sup>3</sup> /h)	783 cfm (1330 m <sup>3</sup> /h)
		Medium	518 cfm (880 m <sup>3</sup> /h)	730 cfm (1240 m <sup>3</sup> /h)
		Low	483 cfm (820 m <sup>3</sup> /h)	648 cfm (1100 m <sup>3</sup> /h)
		Quiet	442 cfm (750 m <sup>3</sup> /h)	607 cfm (1030 m <sup>3</sup> /h)
	Heating	High	554 cfm (940 m <sup>3</sup> /h)	783 cfm (1330 m <sup>3</sup> /h)
		Medium	518 cfm (880 m <sup>3</sup> /h)	730 cfm (1240 m <sup>3</sup> /h)
		Low	483 cfm (820 m <sup>3</sup> /h)	648 cfm (1100 m <sup>3</sup> /h)
		Quiet	442 cfm (750 m <sup>3</sup> /h)	607 cfm (1030 m <sup>3</sup> /h)
NOISE LEVEL	Cooling	High	32 dB(A)	33 dB(A)
		Medium	31 dB(A)	32 dB(A)
		Low	30 dB(A)	30 dB(A)
		Quiet	29 dB(A)	29 dB(A)
	Heating	High	33 dB(A)	35 dB(A)
		Medium	32 dB(A)	34 dB(A)
		Low	31 dB(A)	32 dB(A)
		Quiet	29 dB(A)	29 dB(A)

MEASUREMENTS

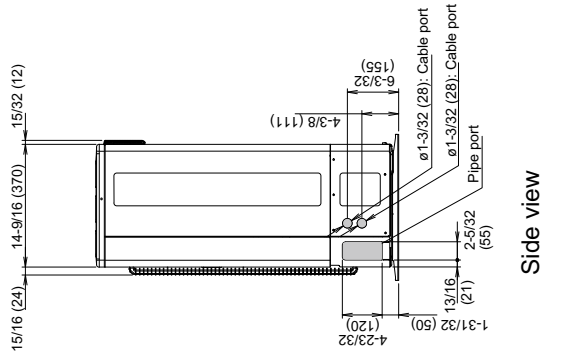
DIMENSIONS	H x W x D	7-25/32 x 35-7/16 x 24-13/32 inch (198 x 900 x 620 mm)	7-25/32 x 43-5/16 x 24-13/32 inch (198 x 1,100 x 620 mm)
WEIGHT	Net / Shipping	50 lb. / 63 lb. (23 kg / 29 kg)	59 lb. / 72 lb. (27 kg / 33 kg)

# DIMENSIONS

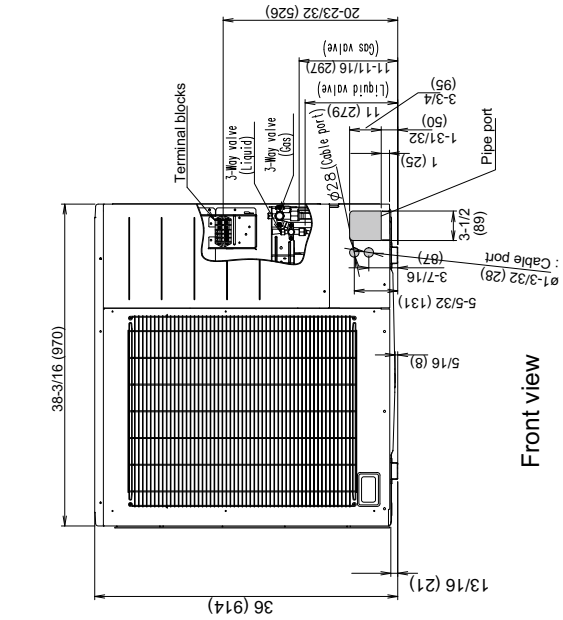
OUTDOOR UNIT  
 AOU48RLXFZ  
 Unit : inch (mm)



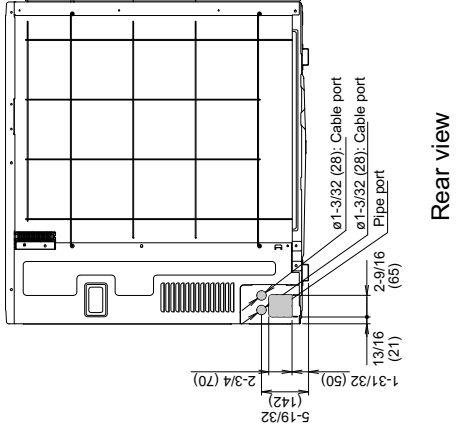
Top view



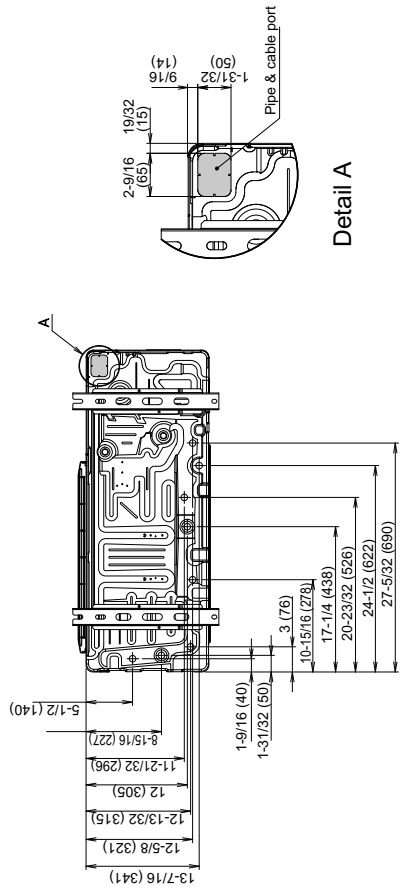
Side view



Front view



Rear view

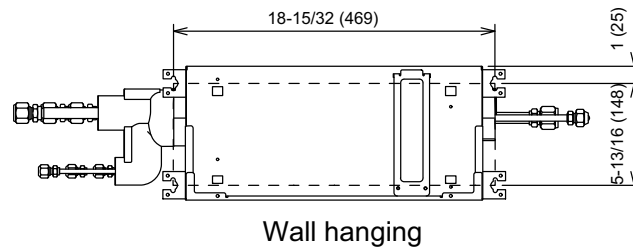
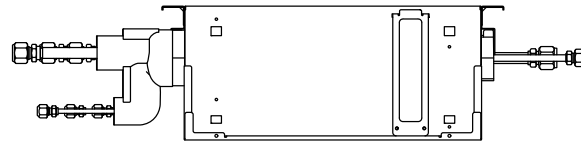
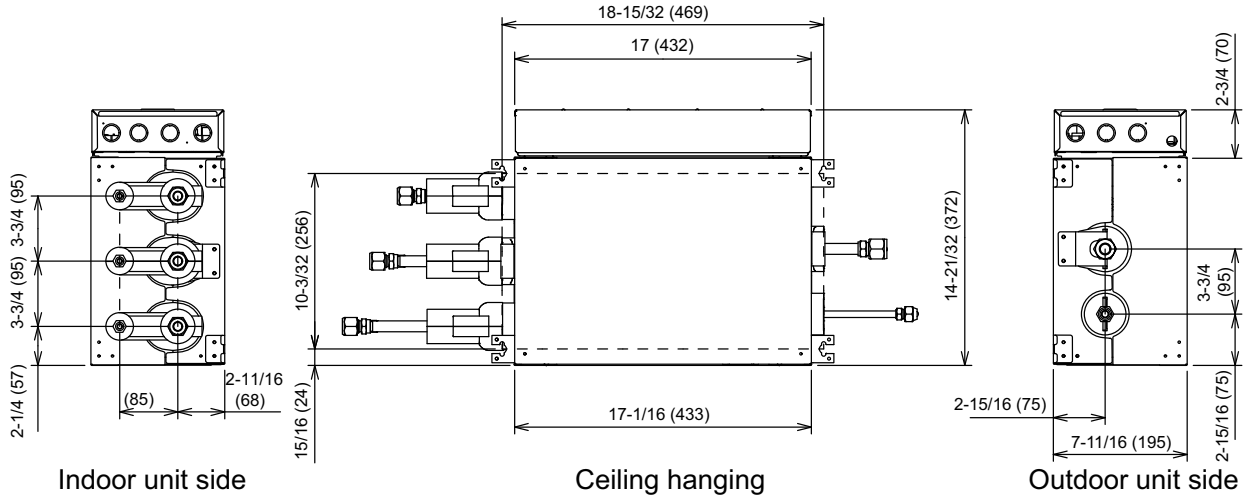
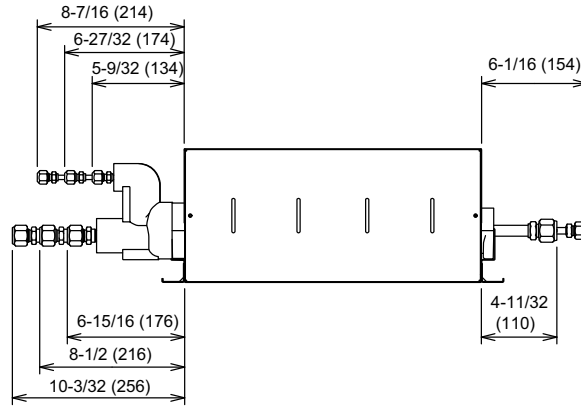


Bottom view

Detail A



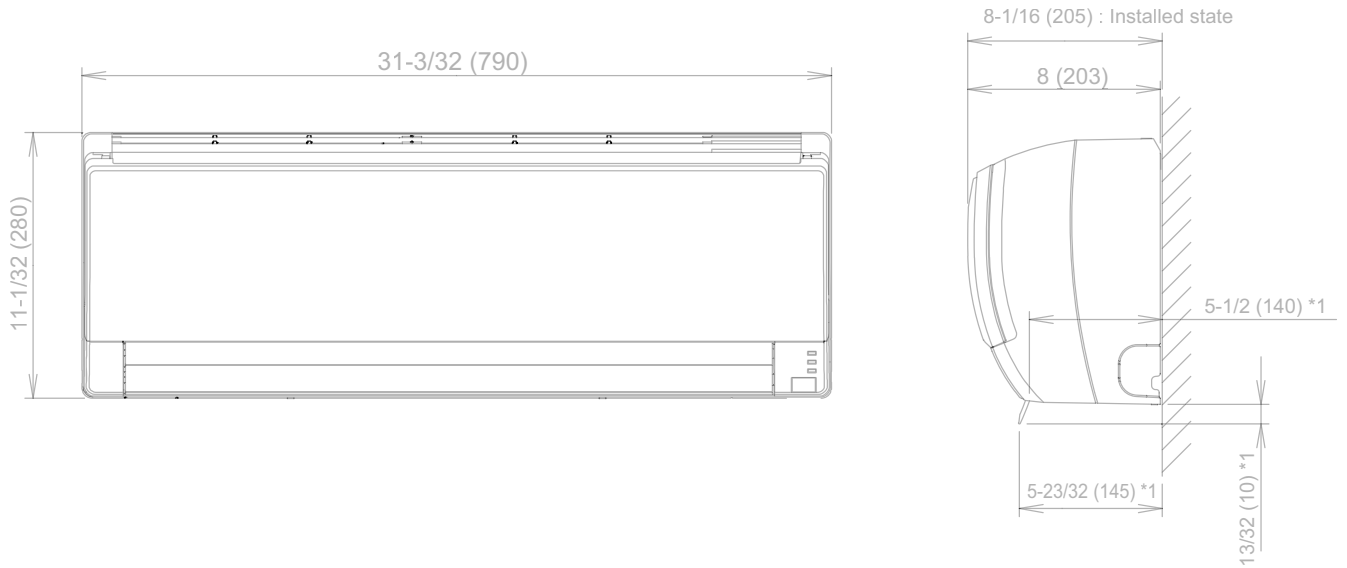
BRANCH BOX  
 UTP-PU03A  
 UTP-PU03B  
 Unit : inch (mm)



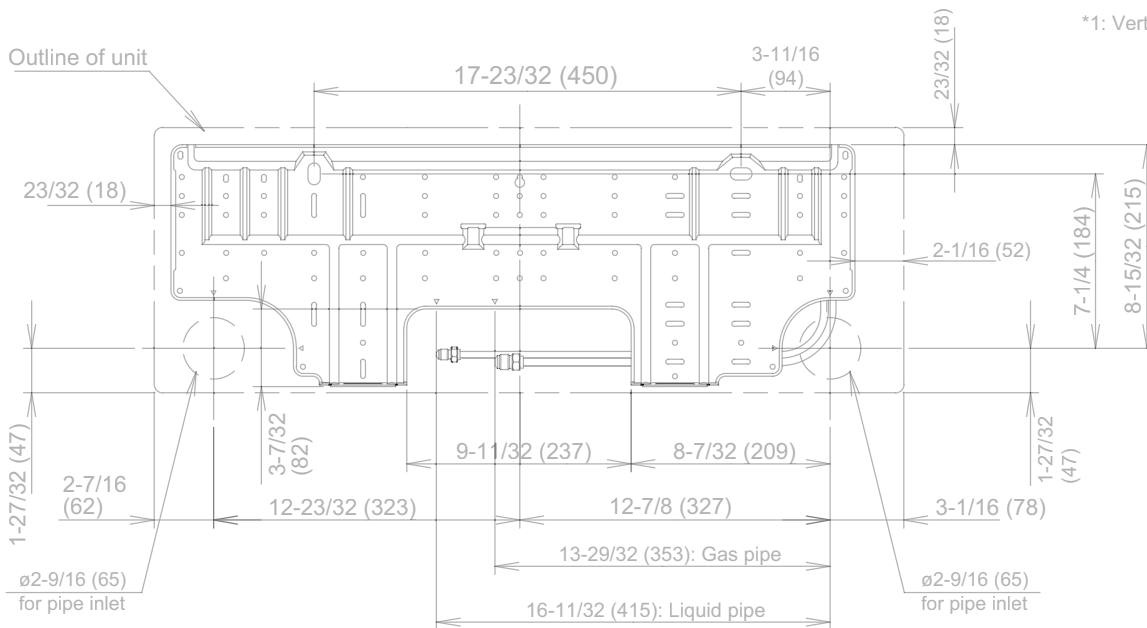
Wall hanging

INDOOR UNIT  
 COMPACT WALL MOUNTED  
 ASU7RLF  
 ASU9RLF  
 ASU12RLF

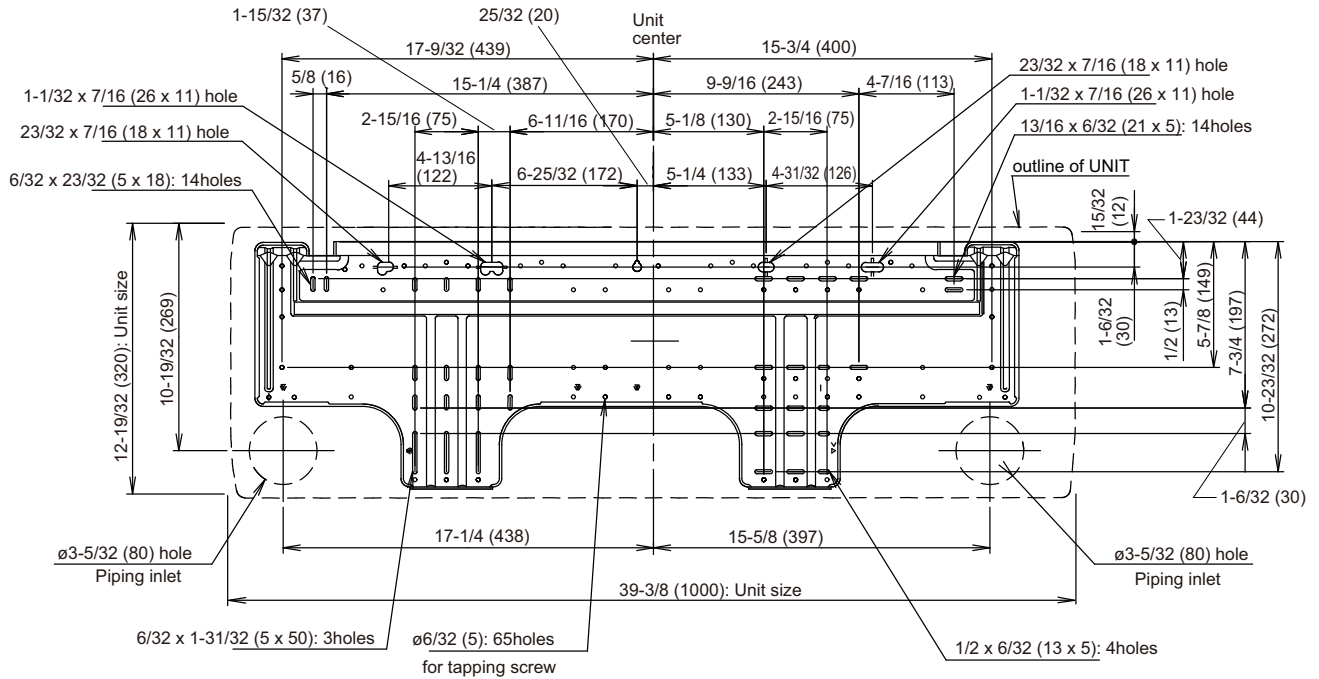
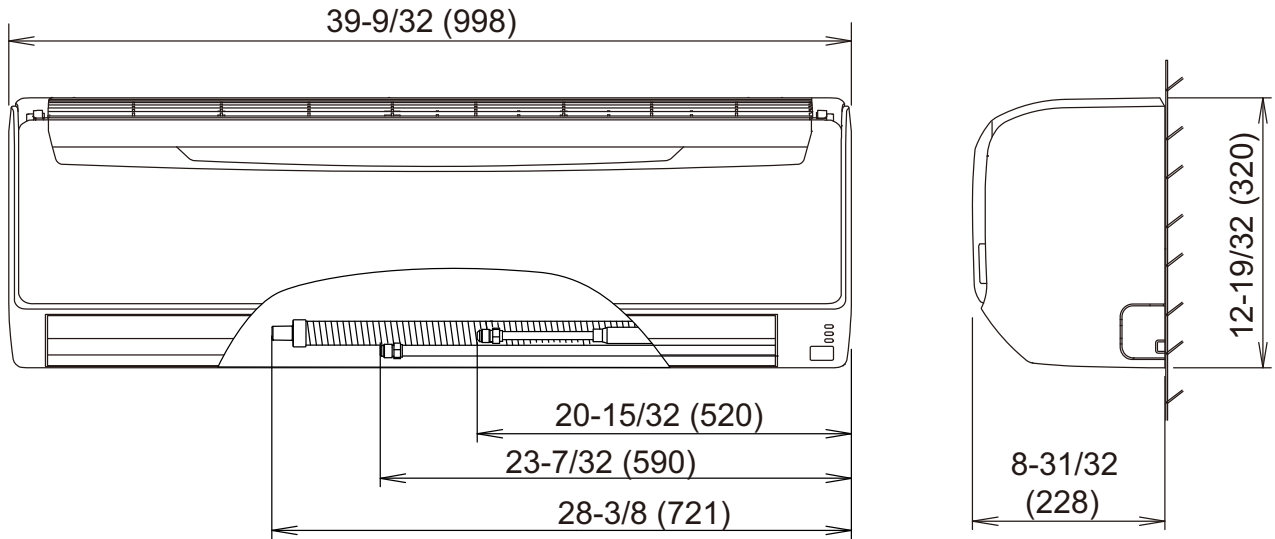
Unit : inch (mm)



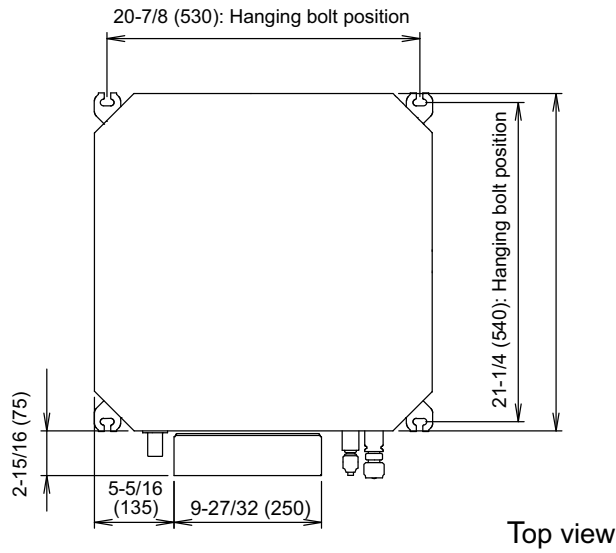
\*1: Vertical flap is downward



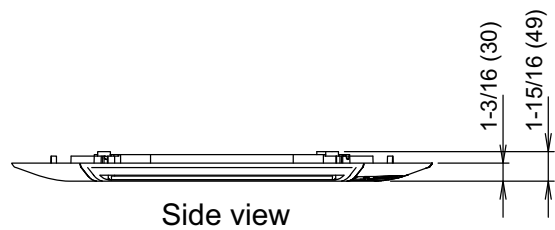
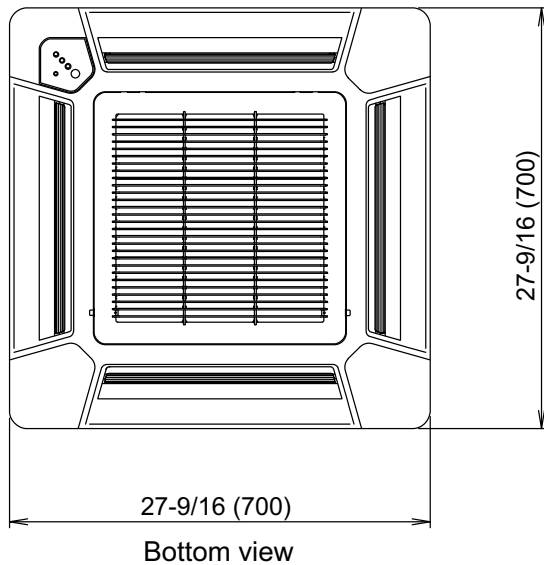
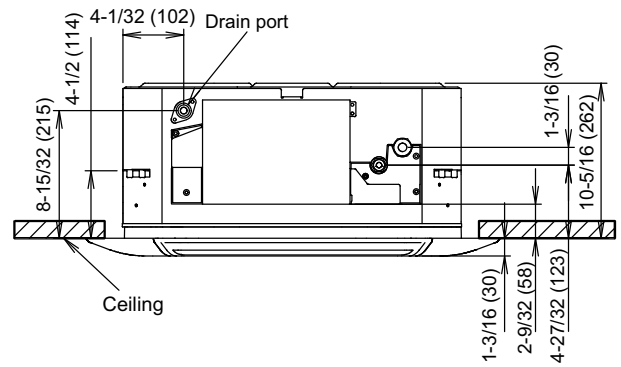
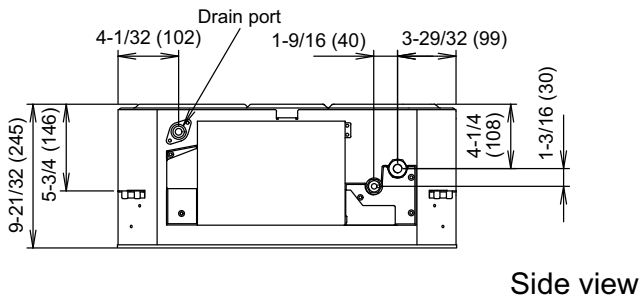
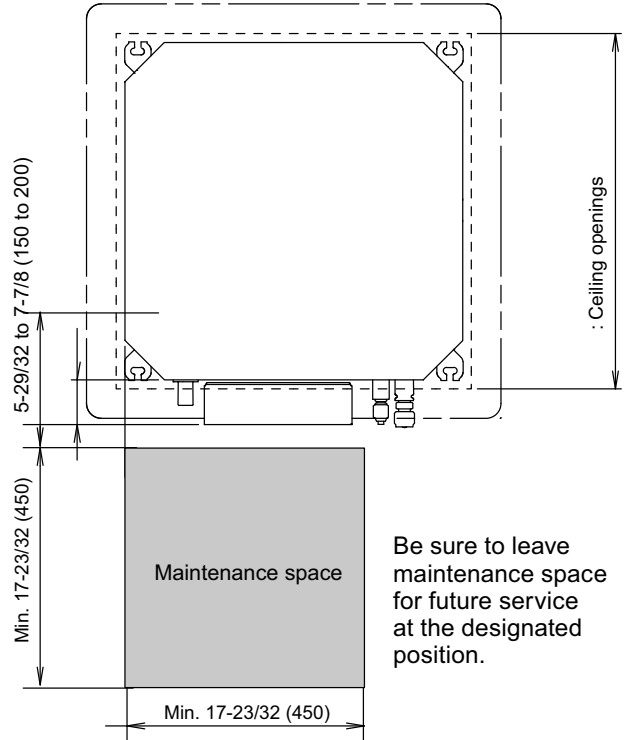
INDOOR UNIT  
 WALL MOUNTED  
 ASU18RLF  
 ASU24RLF  
 Unit : inch (mm)



INDOOR UNIT  
 COMPACT CASSETTE  
 AUU9RLF  
 AUU12RLF  
 AUU18RLF  
 Unit : inch (mm)

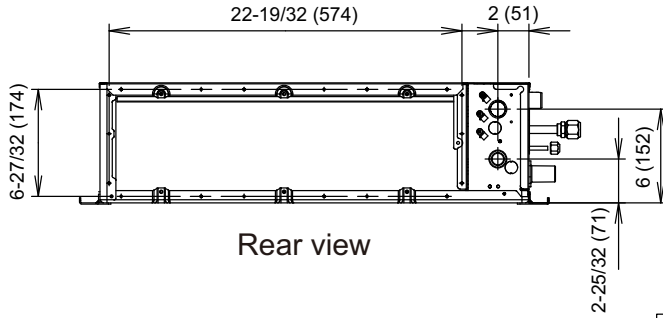


• Decoration panel mounting state

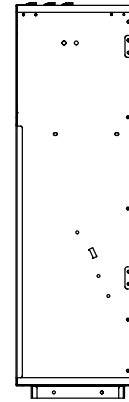


INDOOR UNIT  
SLIM DUCT  
ARU9RLF  
ARU12RLF

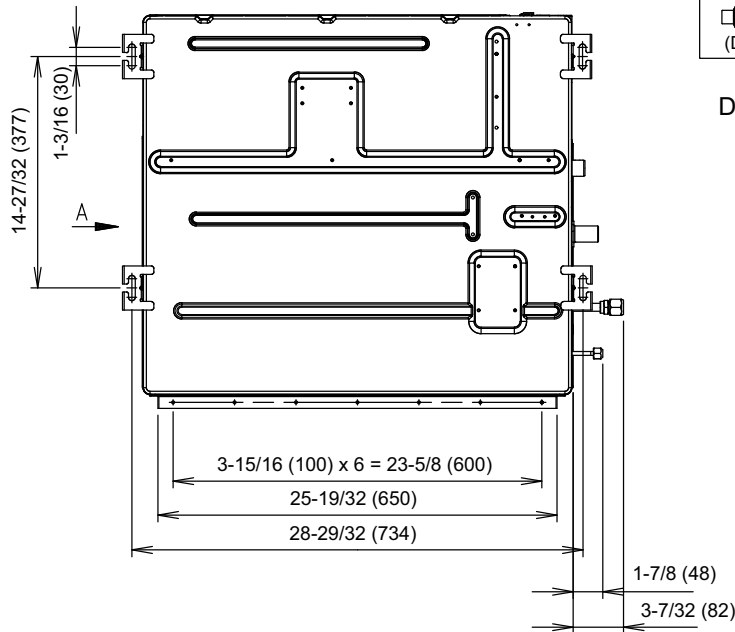
Unit : inch (mm)



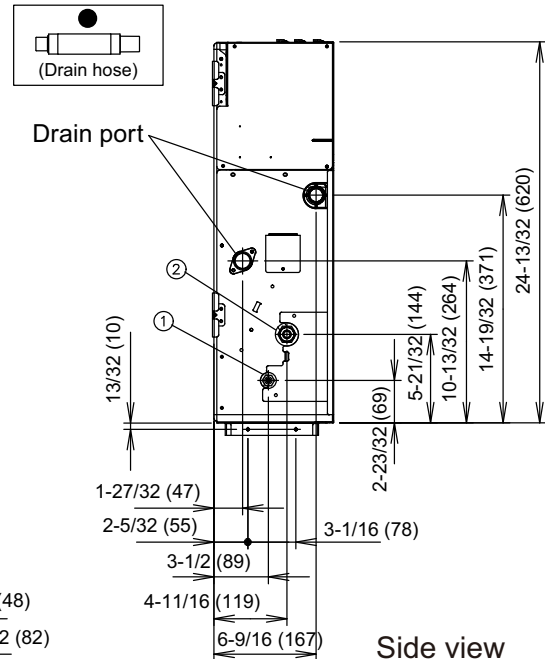
Rear view



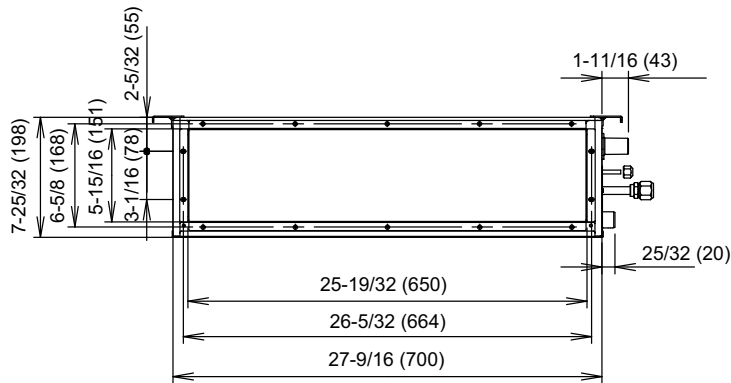
View A



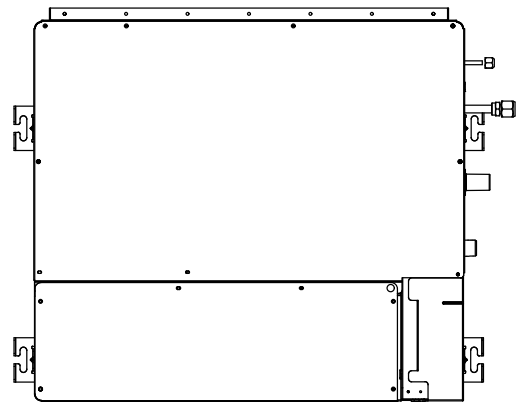
Top view



Side view

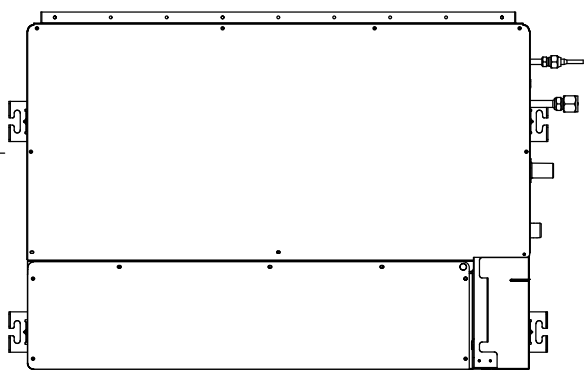
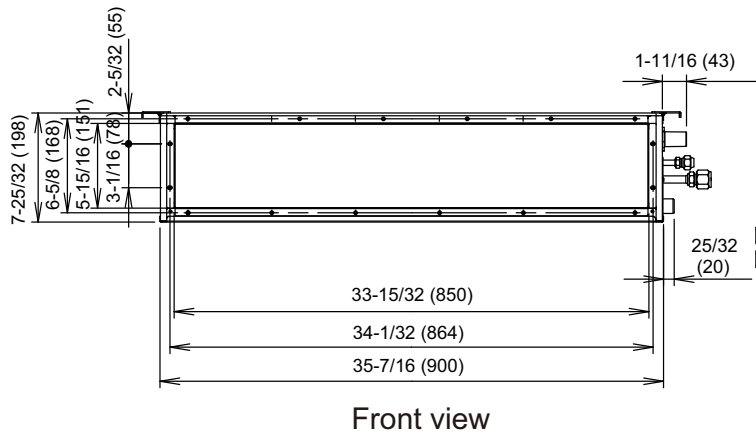
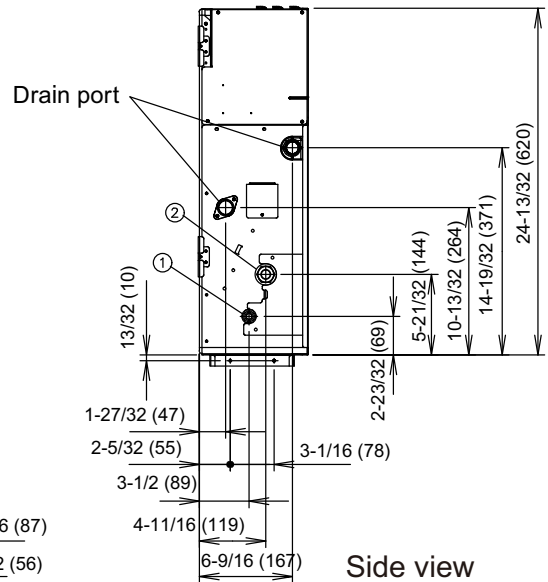
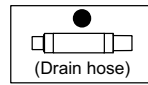
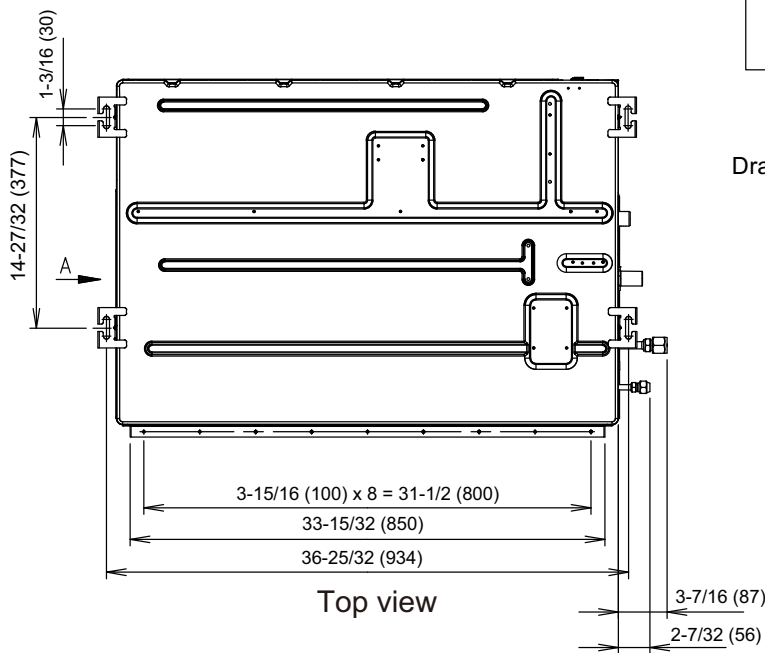
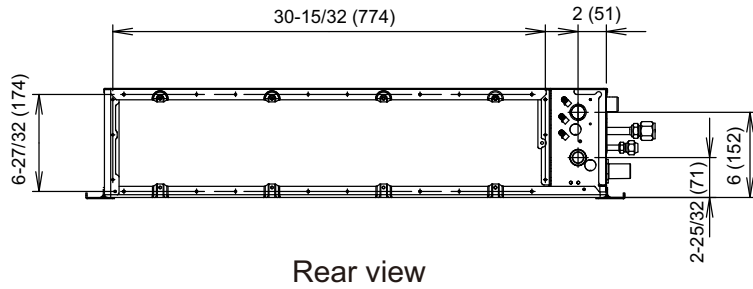


Front view



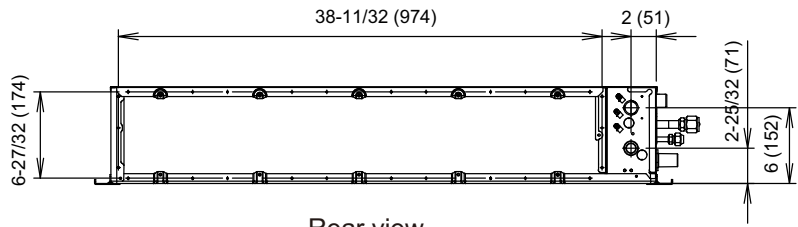
Bottom view

INDOOR UNIT  
SLIM DUCT  
ARU18RLF  
Unit : inch (mm)

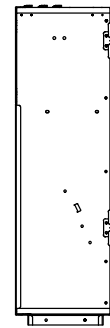


INDOOR UNIT  
SLIM DUCT  
ARU24RLF

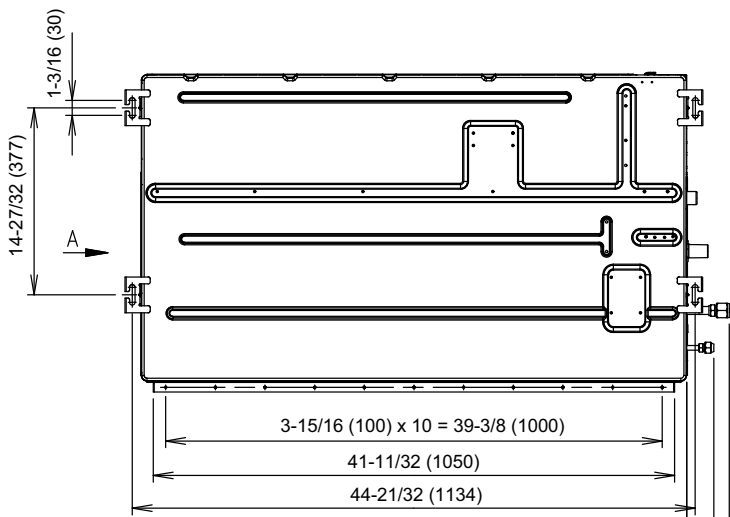
Unit : inch (mm)



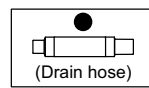
Rear view



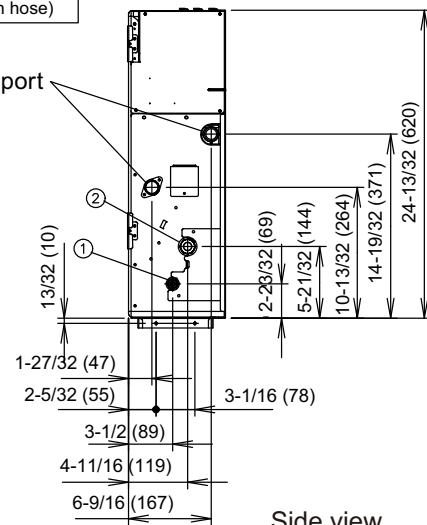
View A



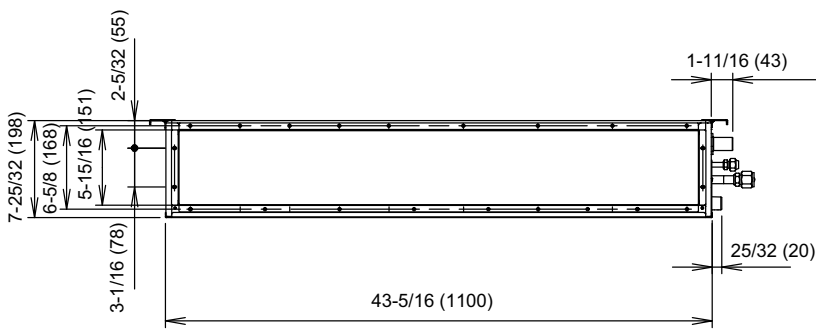
Top view



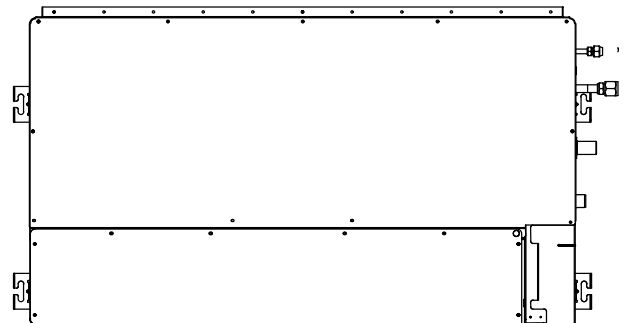
Drain port



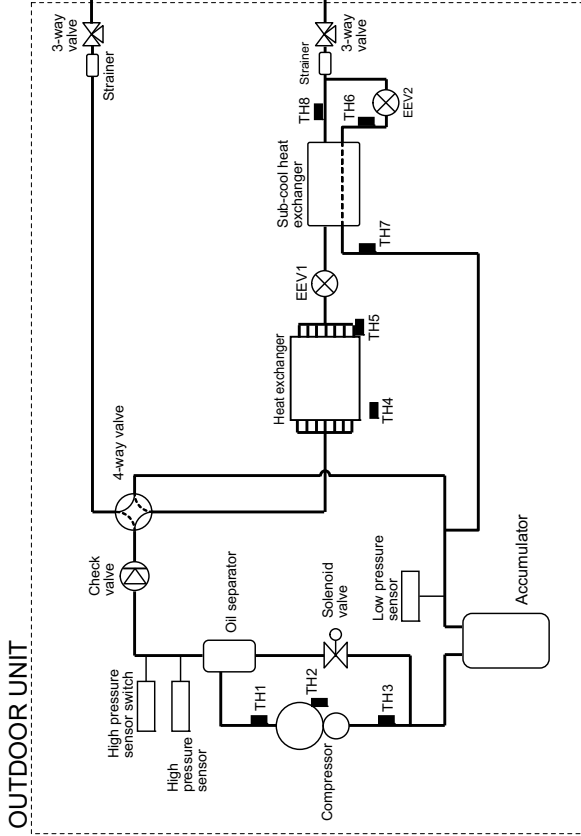
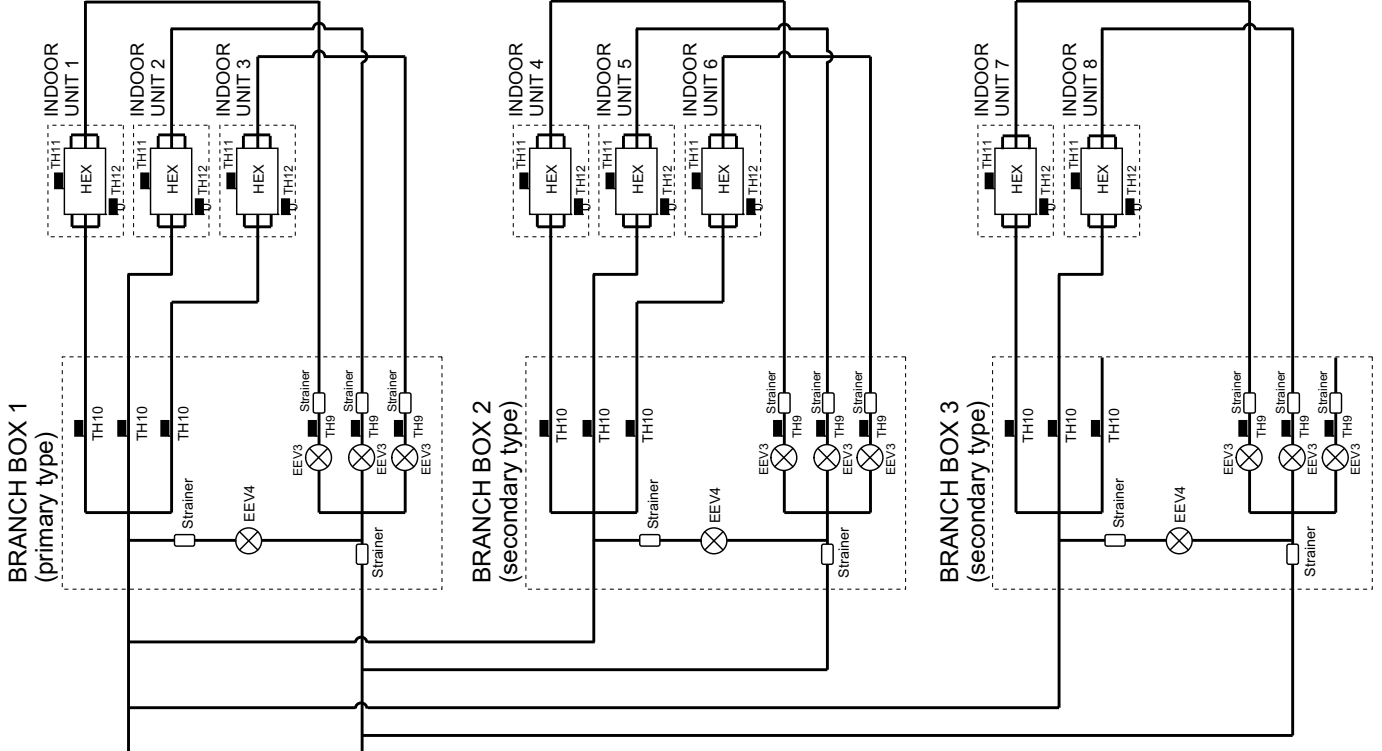
Side view



Front view



Bottom view



**OUTDOOR UNIT**

EEV	Electric expansion valve
TH 1	Discharge temperature thermistor
TH 2	Compressor temperature thermistor
TH 3	Suction temperature thermistor
TH 4	Outdoor temperature thermistor
TH 5	Heat exchanger (outlet) thermistor
TH 6	Sub-cool heat exchanger (inlet) thermistor
TH 7	Sub-cool heat exchanger (outlet) thermistor
TH 8	Liquid temperature thermistor

**REFRIGERANT SYSTEM DIAGRAM**

**BRANCH BOX**

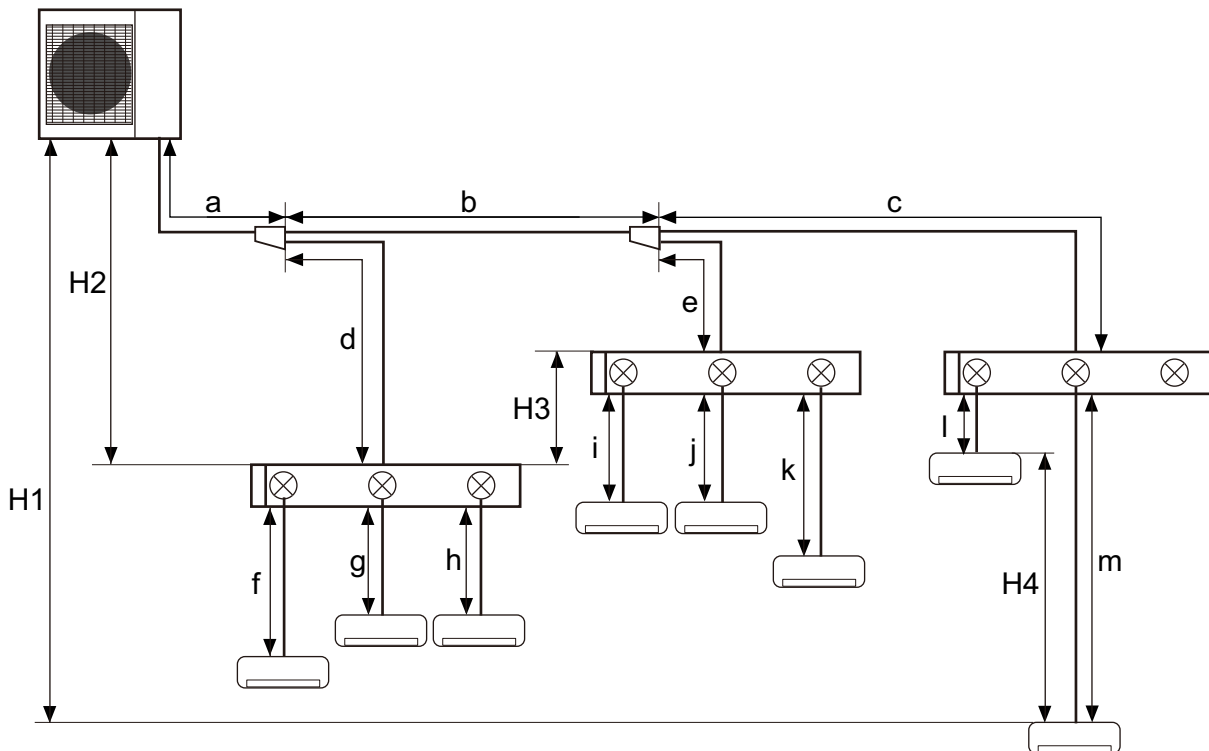
EEV	Electric expansion valve
TH 9	Branch box liquid temperature thermistor
TH 10	Branch box gas temperature thermistor

**INDOOR UNIT**

HEX	Heat exchanger
TH 11	Heat exchanger (middle) thermistor
TH 12	Room temperature thermistor



# PIPING LIMITATION



## Pipe length

Total pipe length		Less than 377 ft (115 m)	Total
Between outdoor unit and the farthest indoor unit		Less than 230 ft (70 m)	a + b + c + m
Between outdoor unit and branch boxes		Less than 180 ft (55 m)	a + b + c + d + e
Between branch box and indoor unit	Total	Less than 197 ft (60 m)	f + g + h + i + j + k + l + m
	Each unit	10 to 49 ft (3 to 15 m)	f, g, h, i, j, k, l, m
Between outdoor unit and the first separation tube		More than 16 ft (5 m)	a
Between outdoor unit and branch box (When there is no separation tube)		More than 16 ft (5 m)	a + d

## Height difference

Between outdoor unit and indoor unit	Less than 98 fr (30 m)	H1
Between outdoor unit and branch box	Less than 98 ft (30 m)	H2
Between branch boxes	Less than 49 ft (15 m)	H3
Between indoor units	Less than 49 ft (15 m)	H4

## ADDITIONAL CHARGE

Liquid pipe diameter	Additional charge
∅ 1/4 in. (6.35 mm)	0.014 lbs/ft (21 g/m)
∅ 3/8 in. (9.52 mm)	0.039 lbs/ft (58 g/m)

Additional refrigerant depends on the liquid pipe diameter.

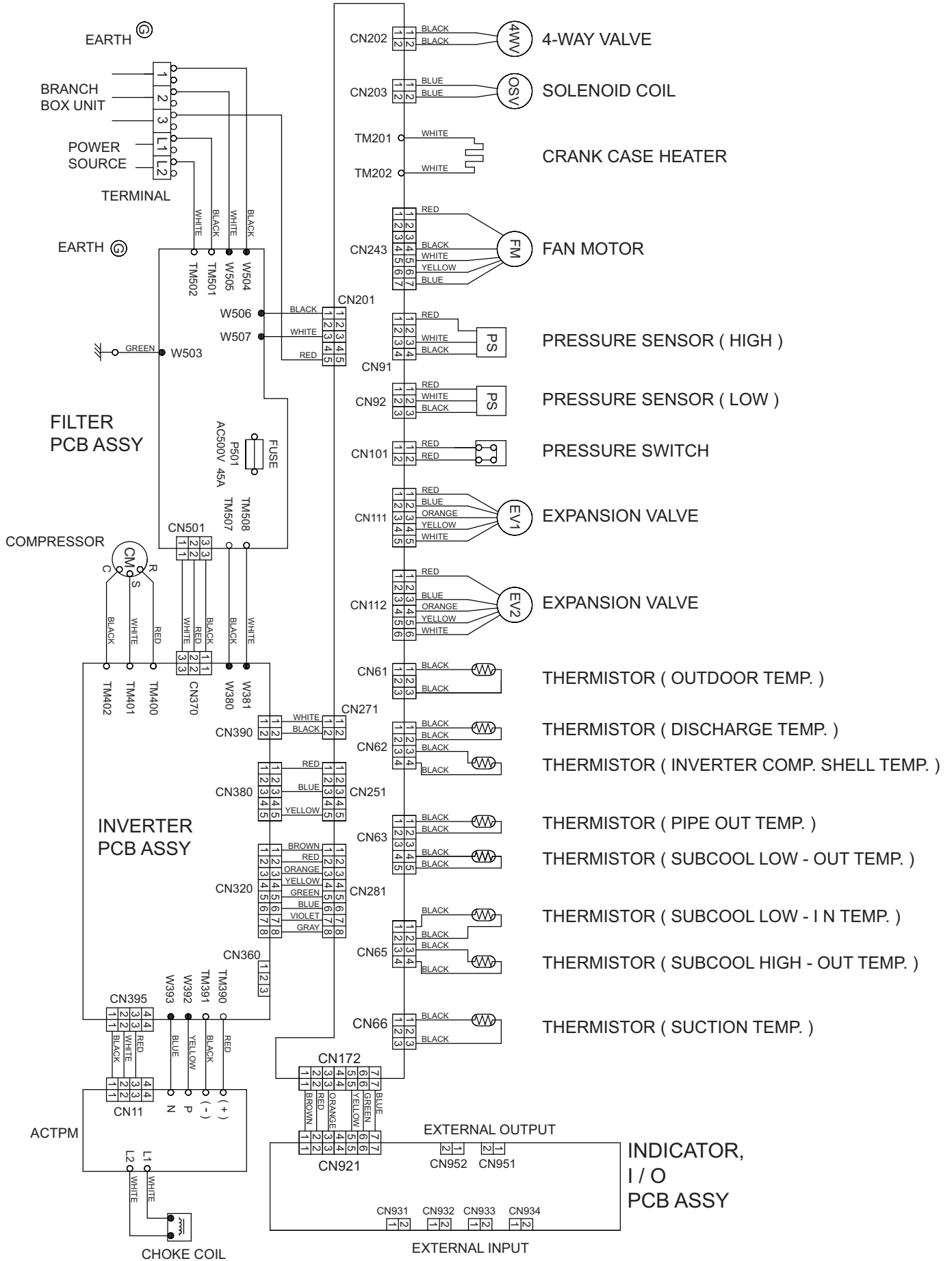
## PIPE DIAMETER

	AOU48RLXFZ	Branch box, main (x1)	Branch box, branch (x3)	ASU7, 9, 12RLF AUU9, 12RLF ARU9, 12RLF	ASU18RLF AUU18RLF ARU18RLF	ASU24RLF ARU24RLF
Liquid pipe	3/8 in. (9.52 mm)		1/4 in. (6.35 mm)			
Gas pipe	5/8 in. (15.88 mm)		1/2 in. (12.7 mm)	3/8 in. (9.52 mm)	1/2 in. (12.7 mm)	5/8 in. (15.88 mm)

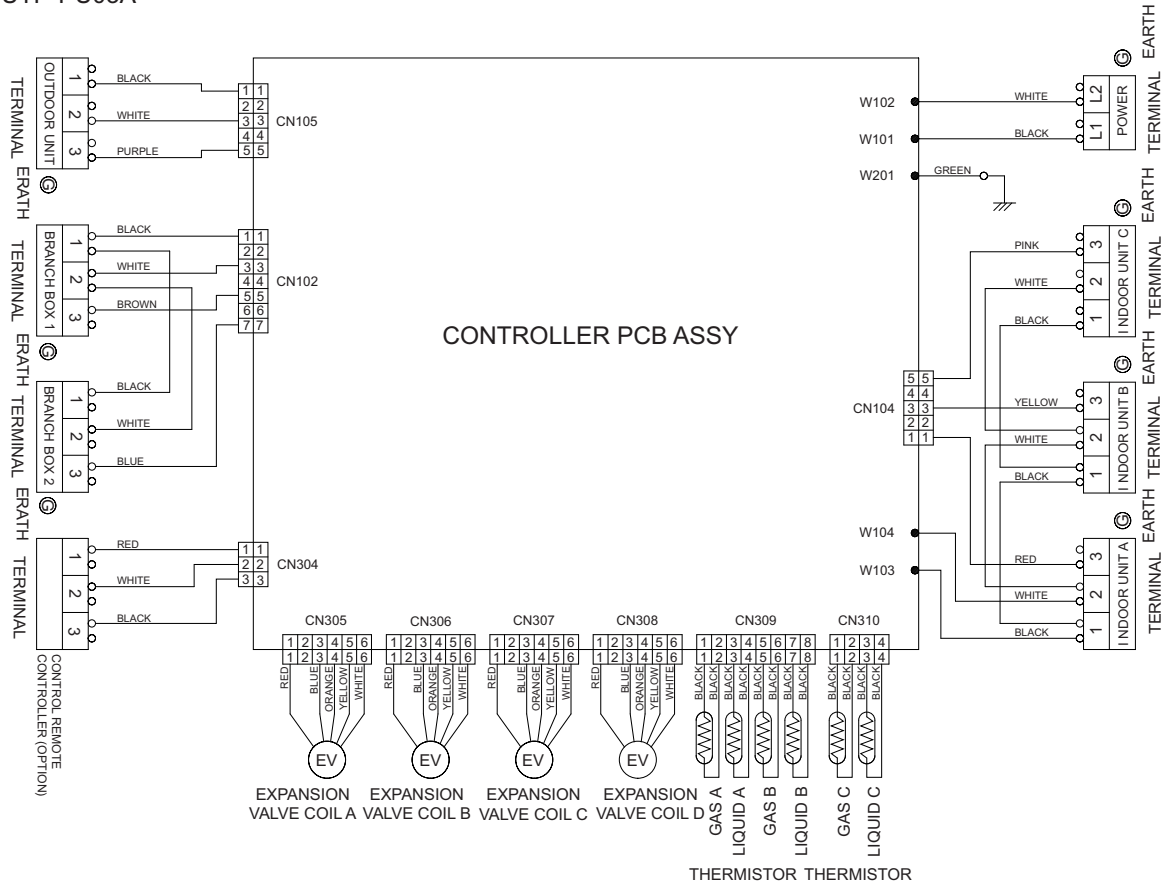
# CIRCUIT DIAGRAM

OUTDOOR UNIT  
AOU48RLXZF

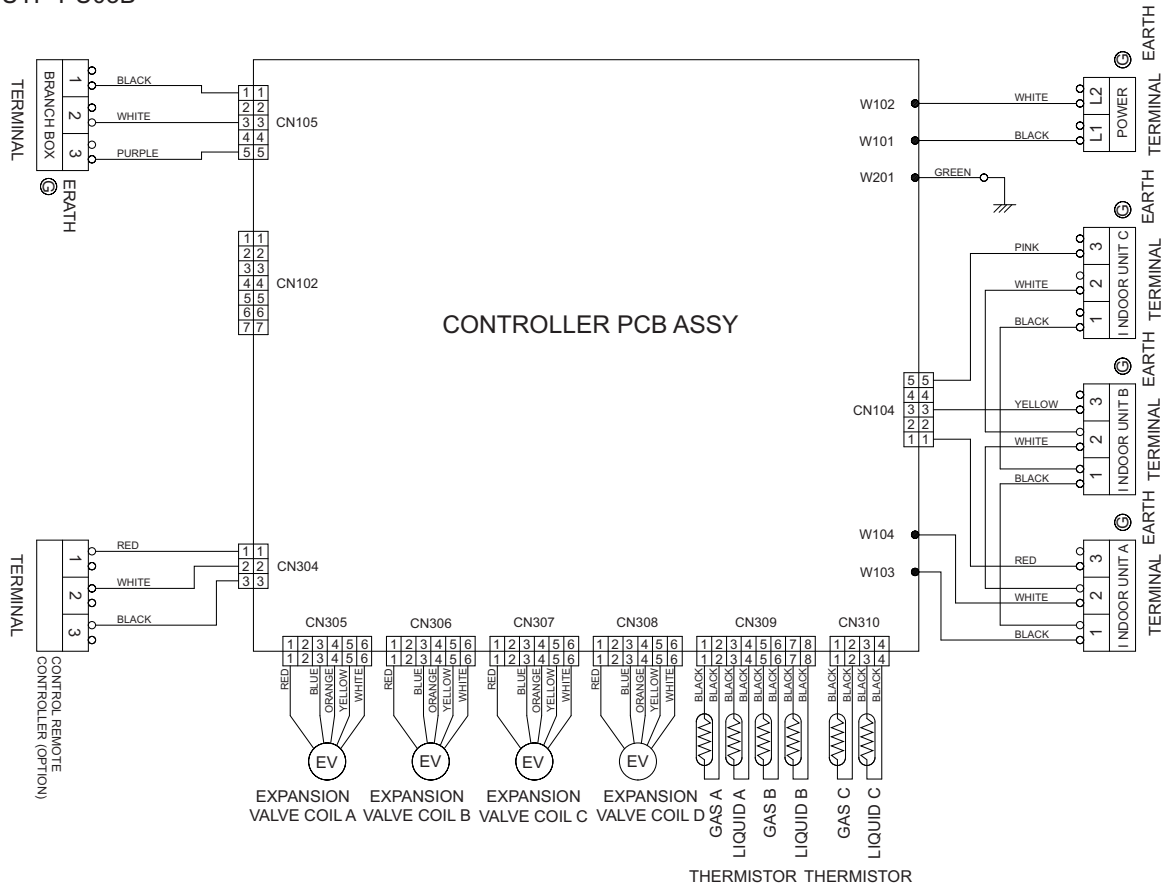
CONTROLLER PCB  
ASSY ( MAIN PCB )



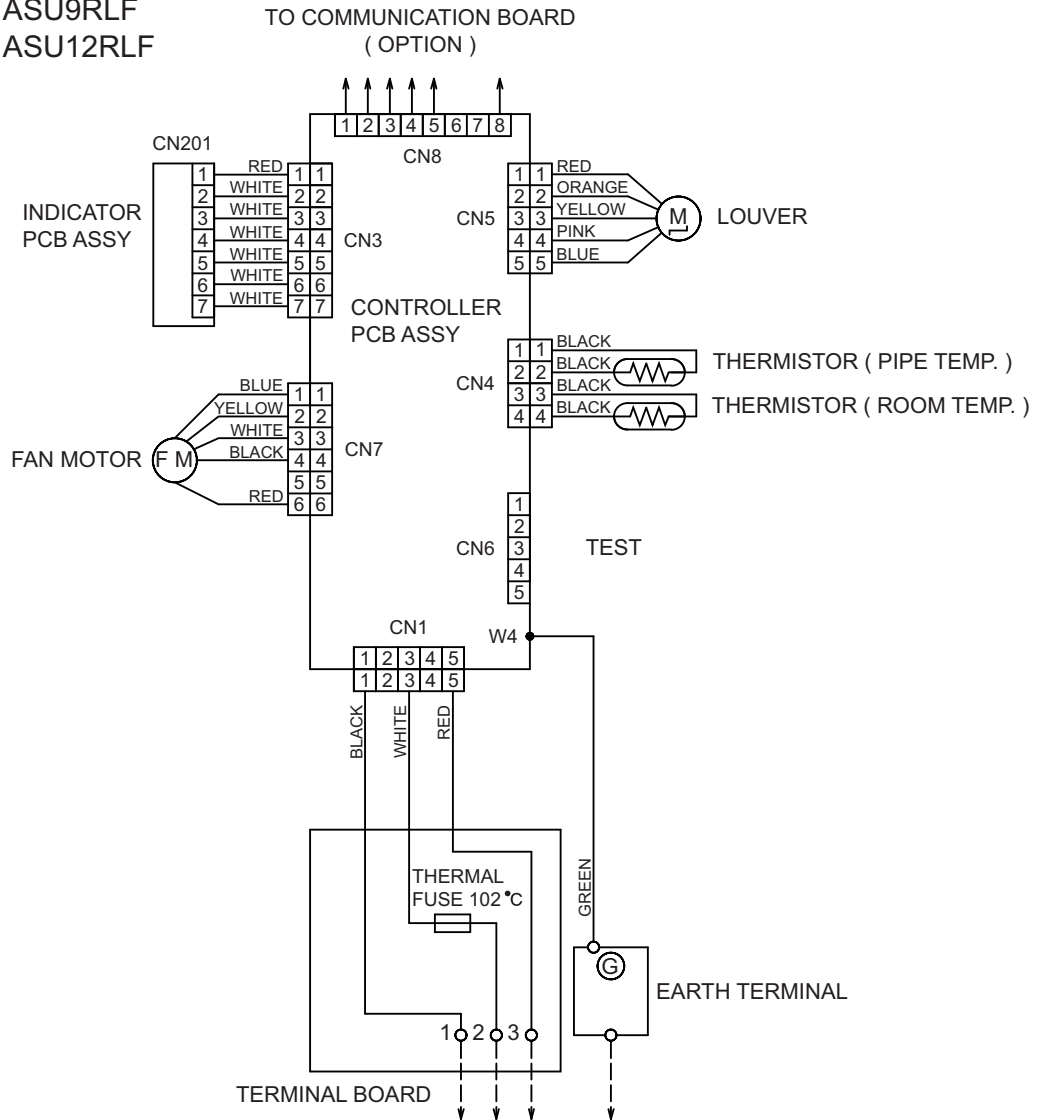
BRANCH BOX  
UTP-PU03A



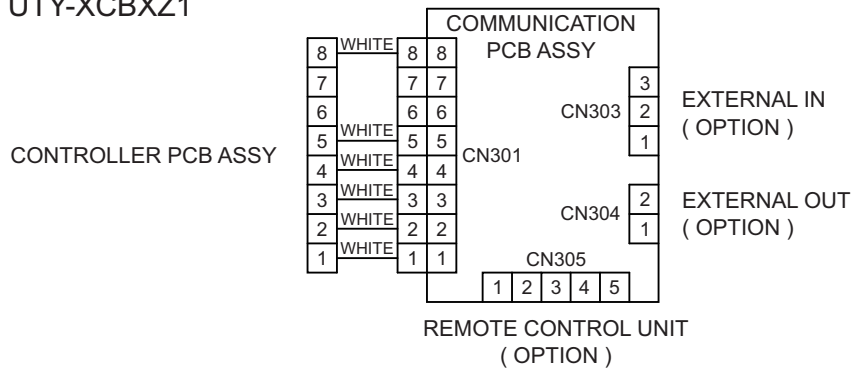
UTP-PU03B



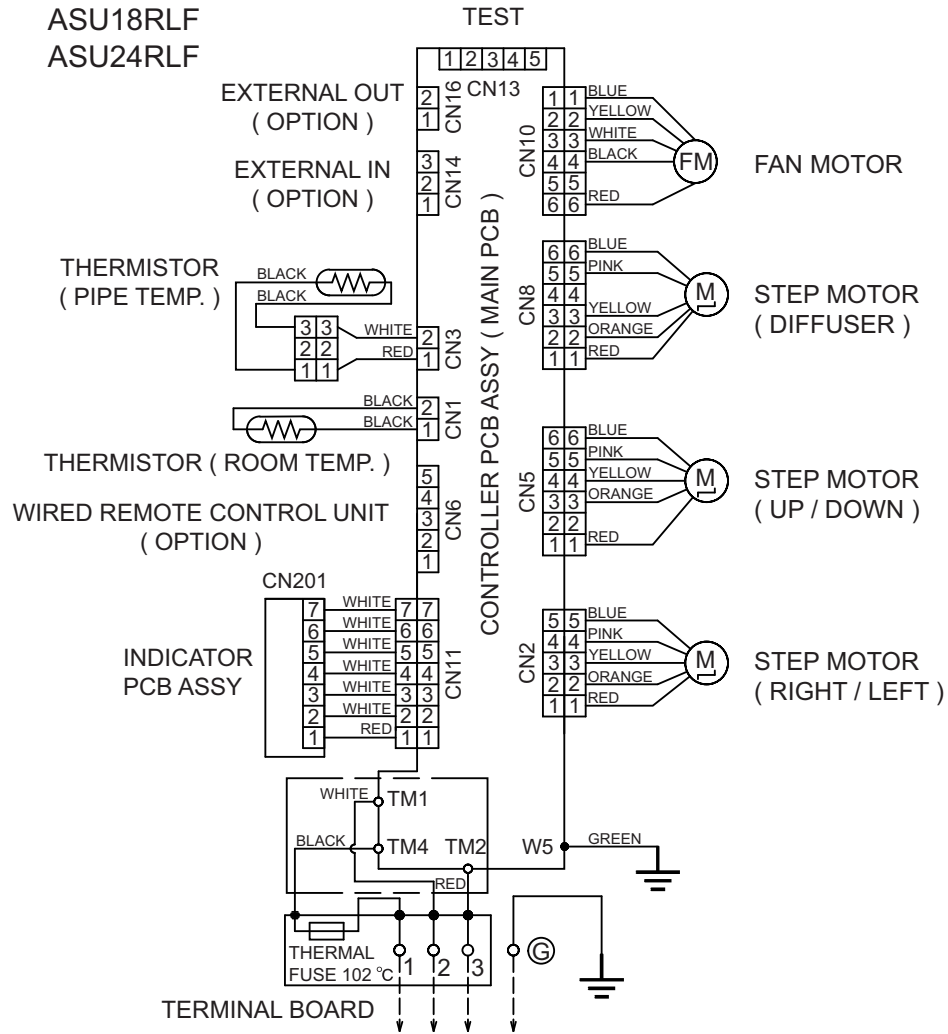
INDOOR UNIT  
 COMPACT WALL MOUNTED  
 ASU7RLF  
 ASU9RLF  
 ASU12RLF



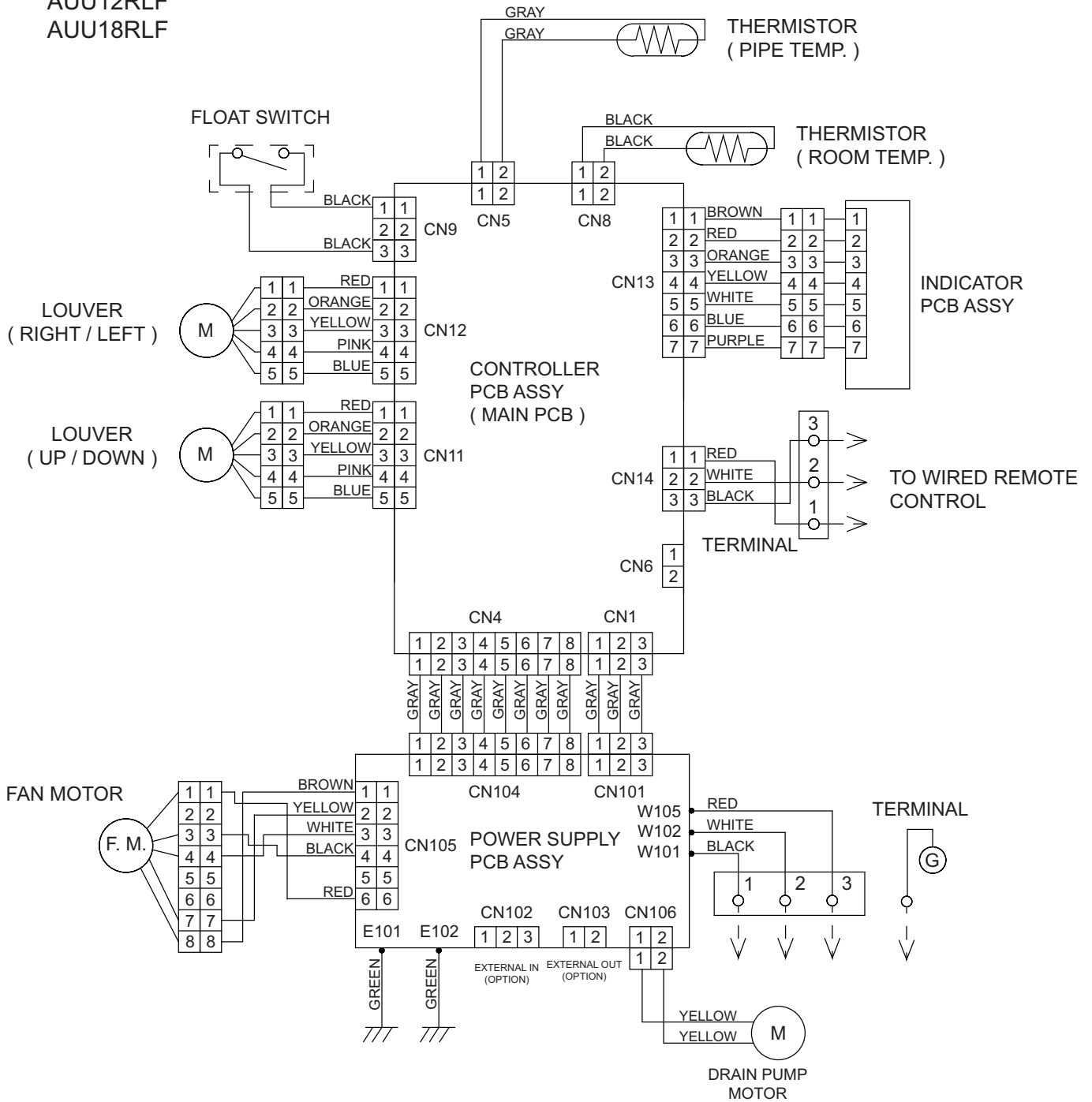
COMMUNICATION KIT  
 UTY-XCBXZ1



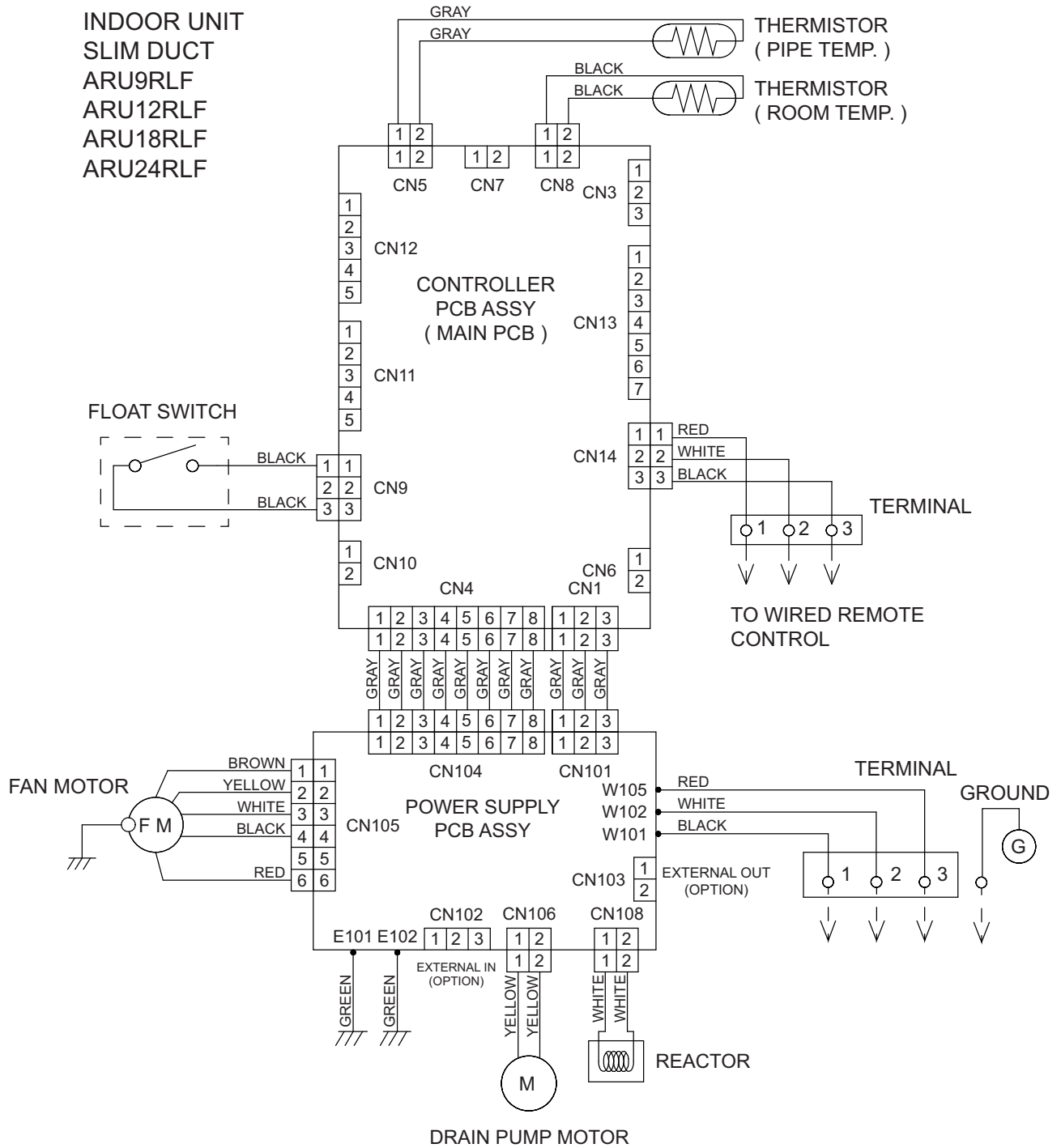
INDOOR UNIT  
 WALL MOUNTED  
 ASU18RLF  
 ASU24RLF



INDOOR UNIT  
 COMPACT CASSETTE  
 AUU9RLF  
 AUU12RLF  
 AUU18RLF

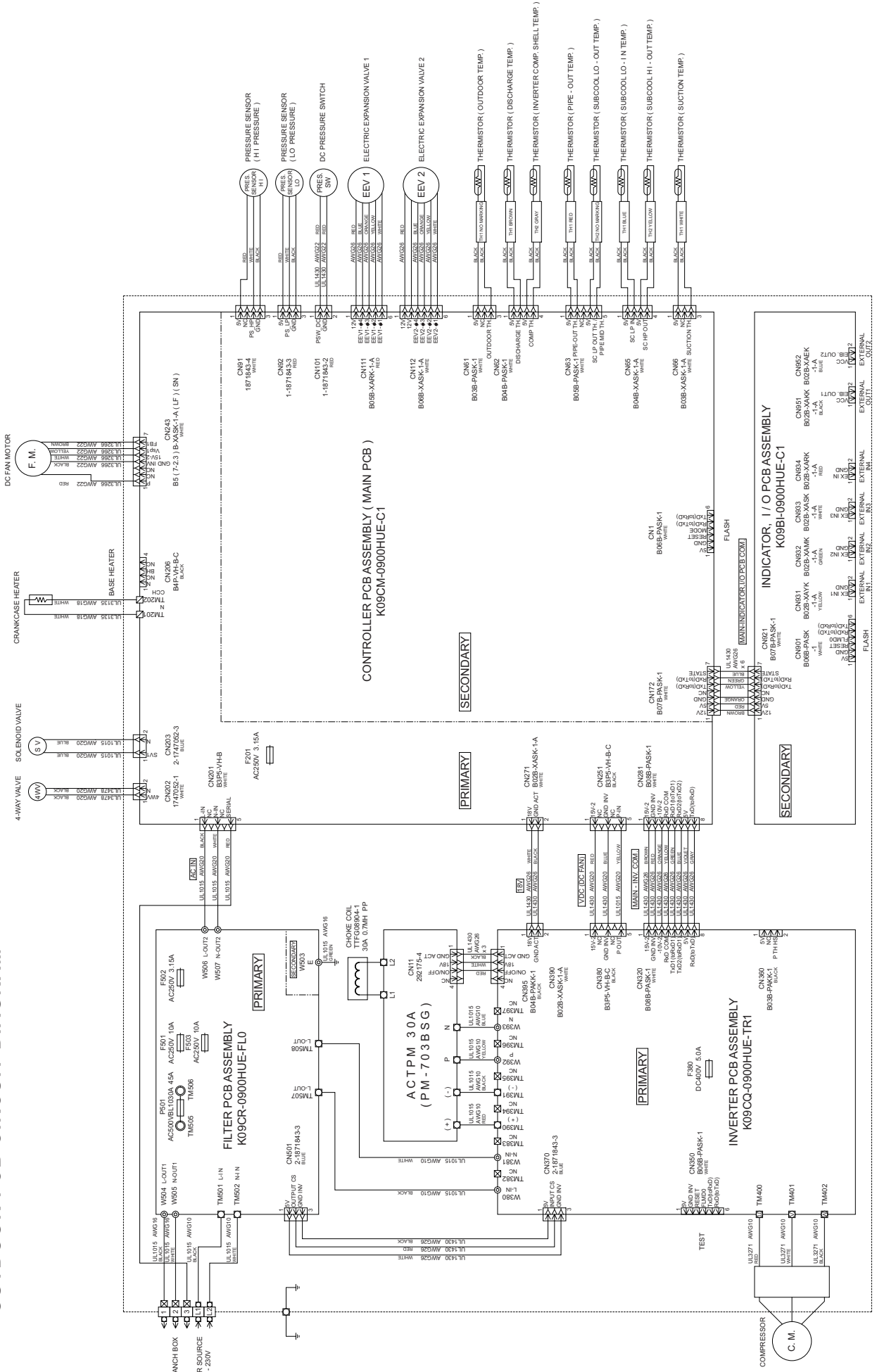


INDOOR UNIT  
SLIM DUCT  
ARU9RLF  
ARU12RLF  
ARU18RLF  
ARU24RLF



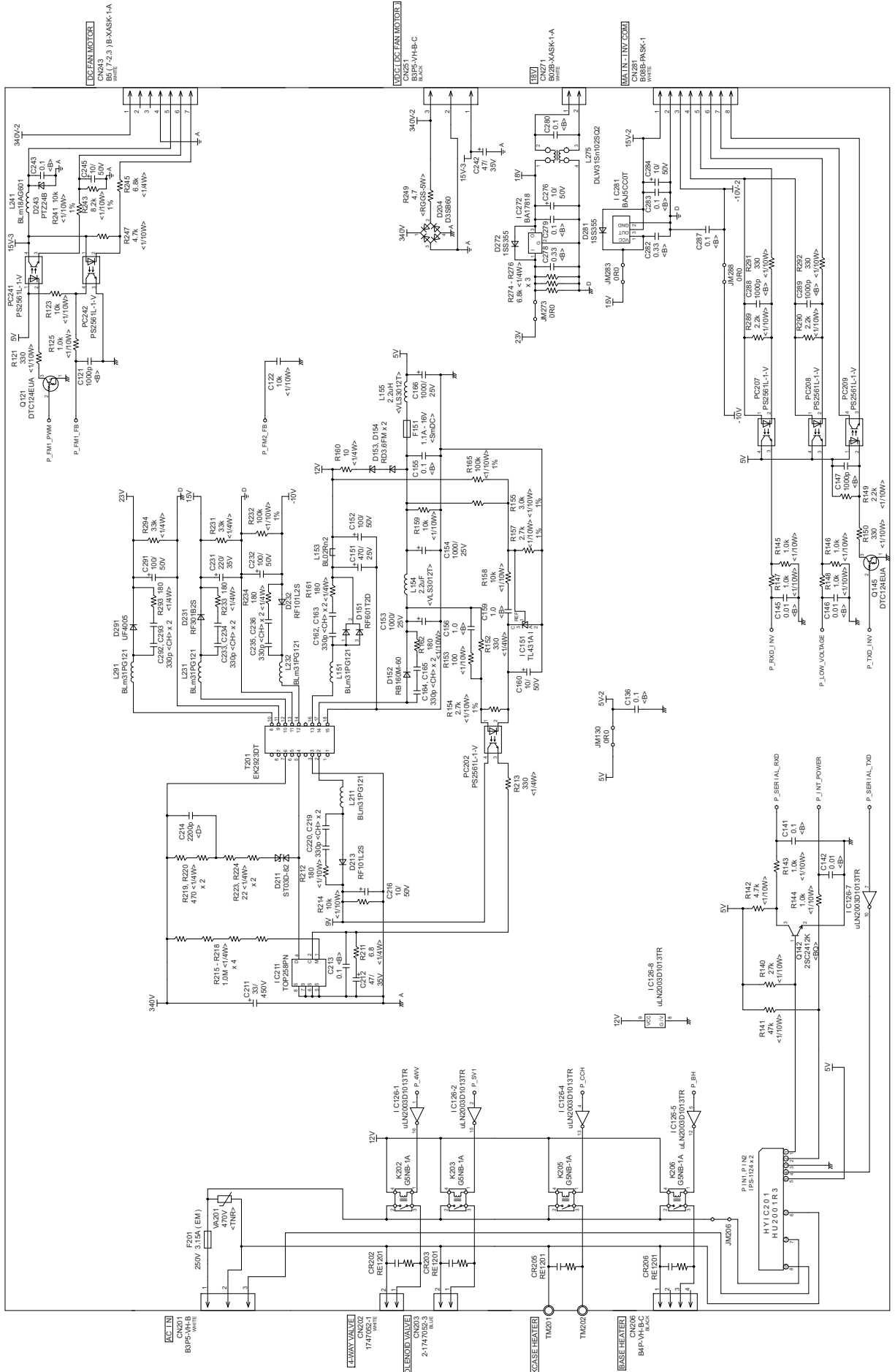
# OUTDOOR PCB CIRCUIT DIAGRAM

## INVERTER ASSEMBLY EZ-009DHUE



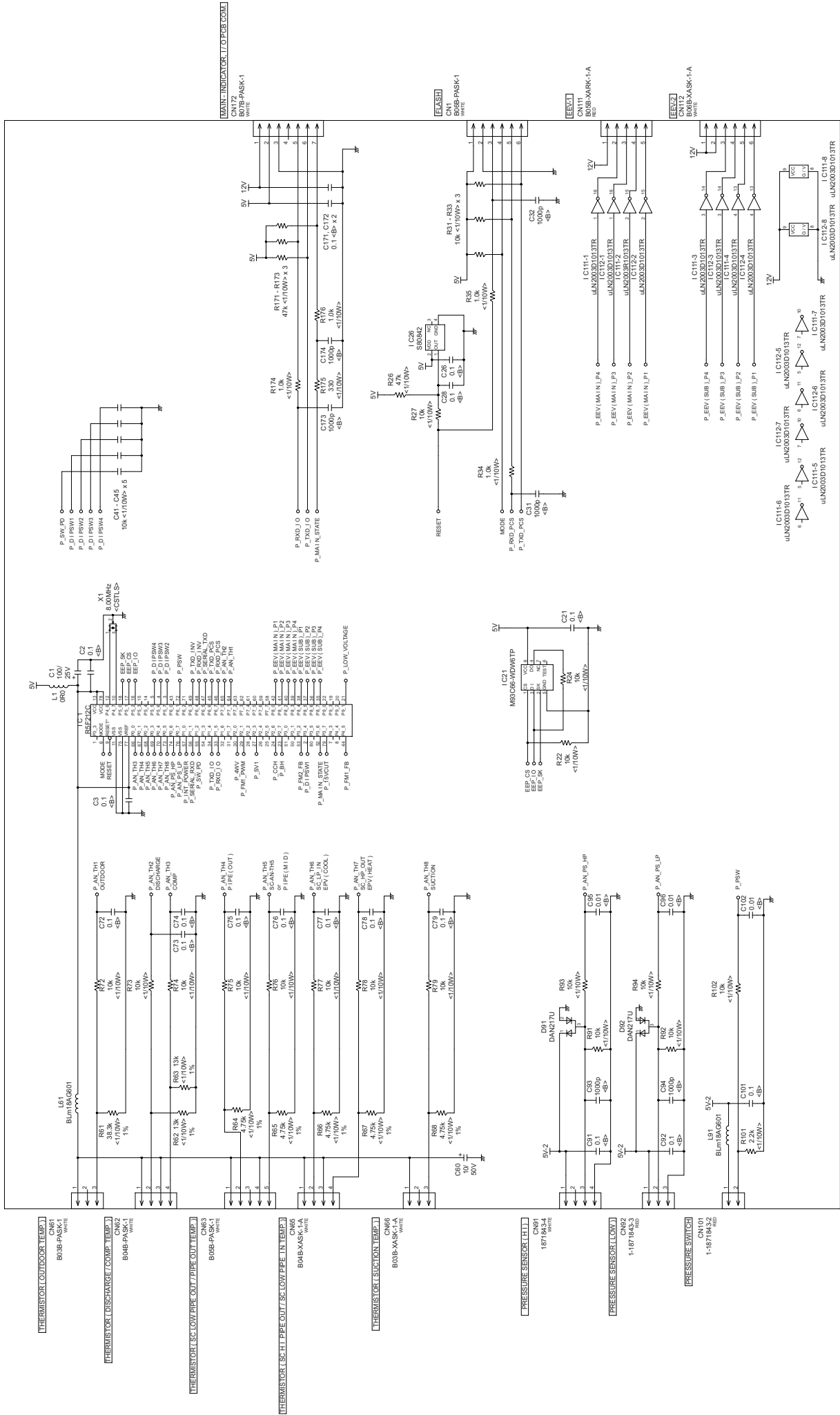


OUTDOOR UNIT  
 CONTROLLER PCB ASSEMBLY ( MAIN PCB ) : PRIMARY  
 K09CM-0900HUE-C-1

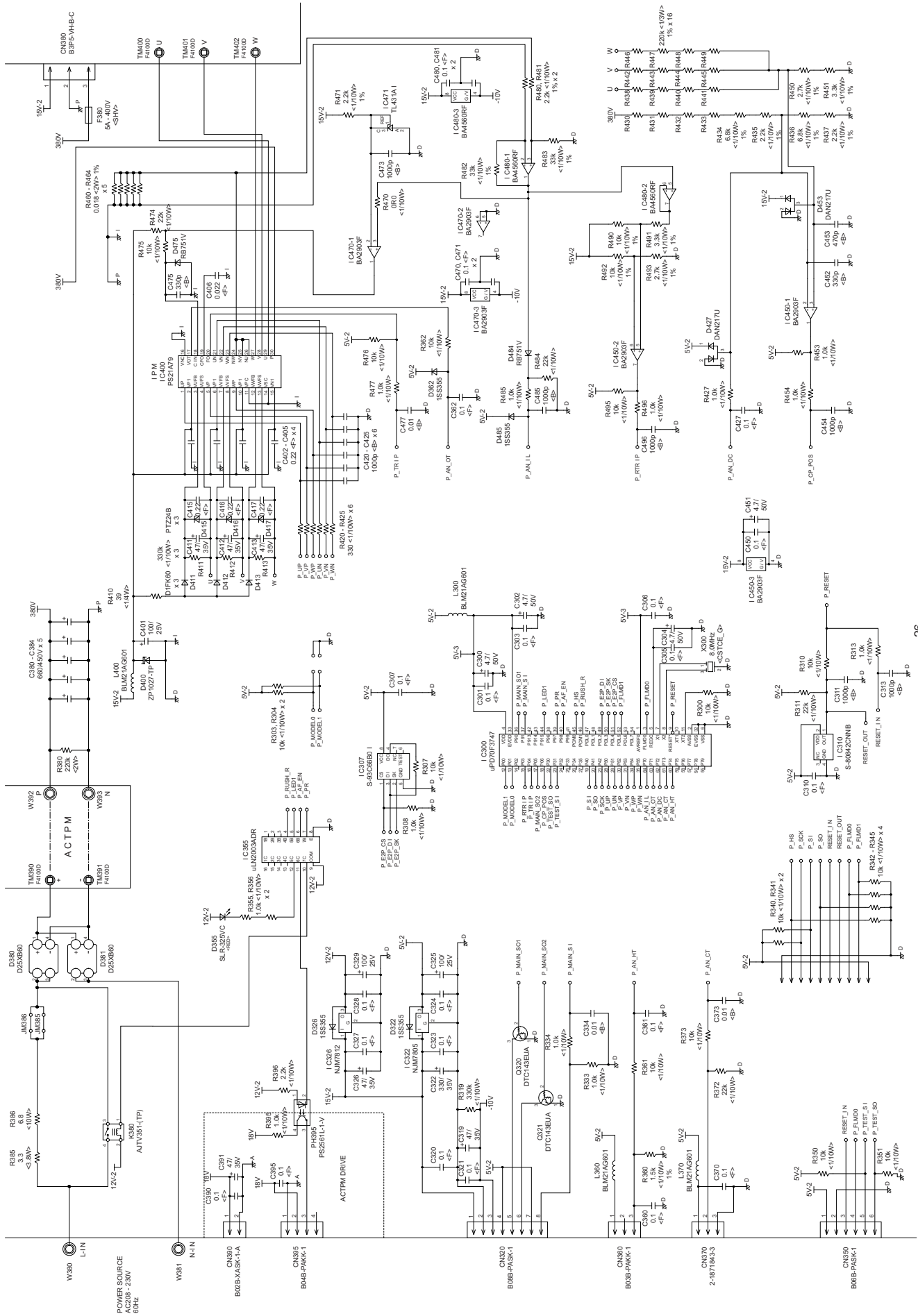


OUTDOOR UNIT

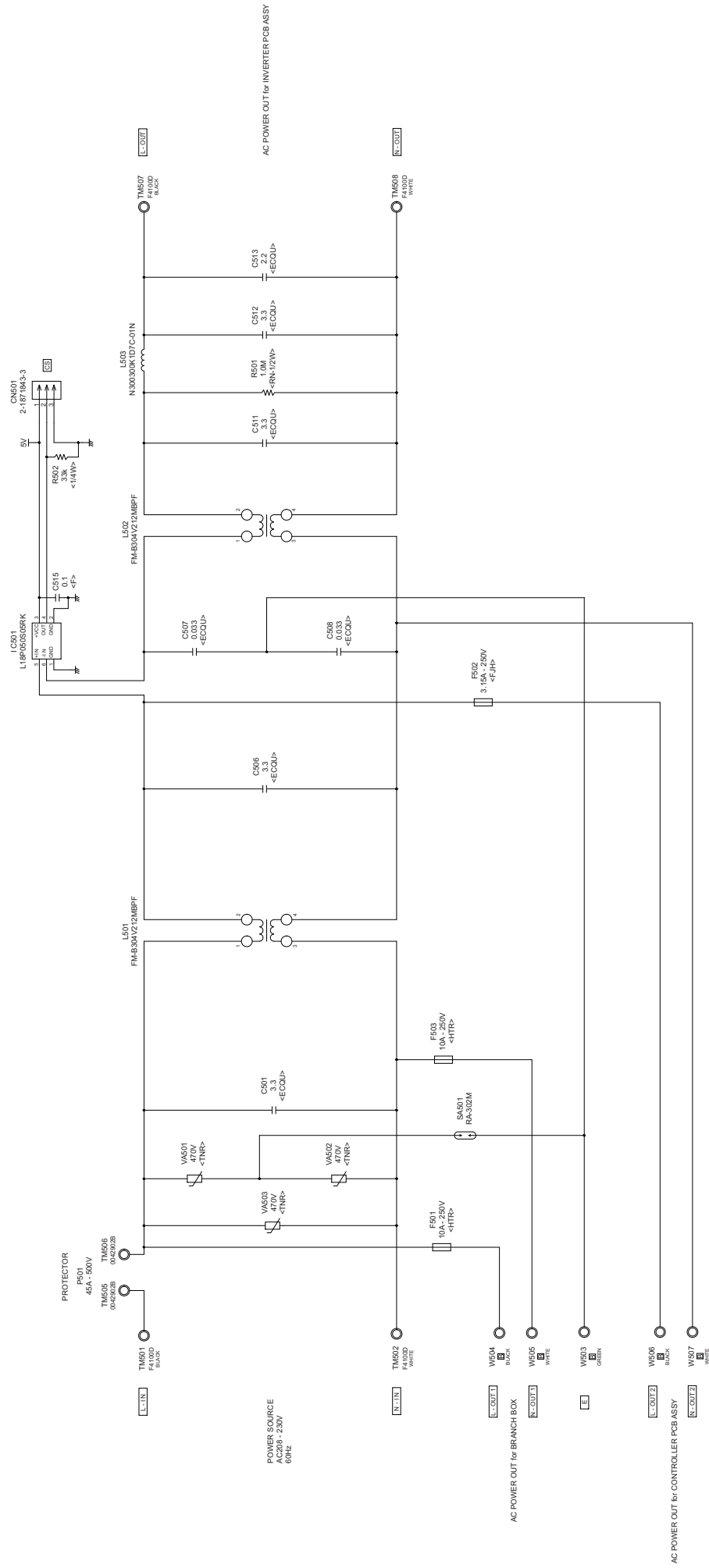
CONTROLLER PCB ASSEMBLY ( MAIN PCB ) : SECONDARY  
K09CM-0900HUE-C1



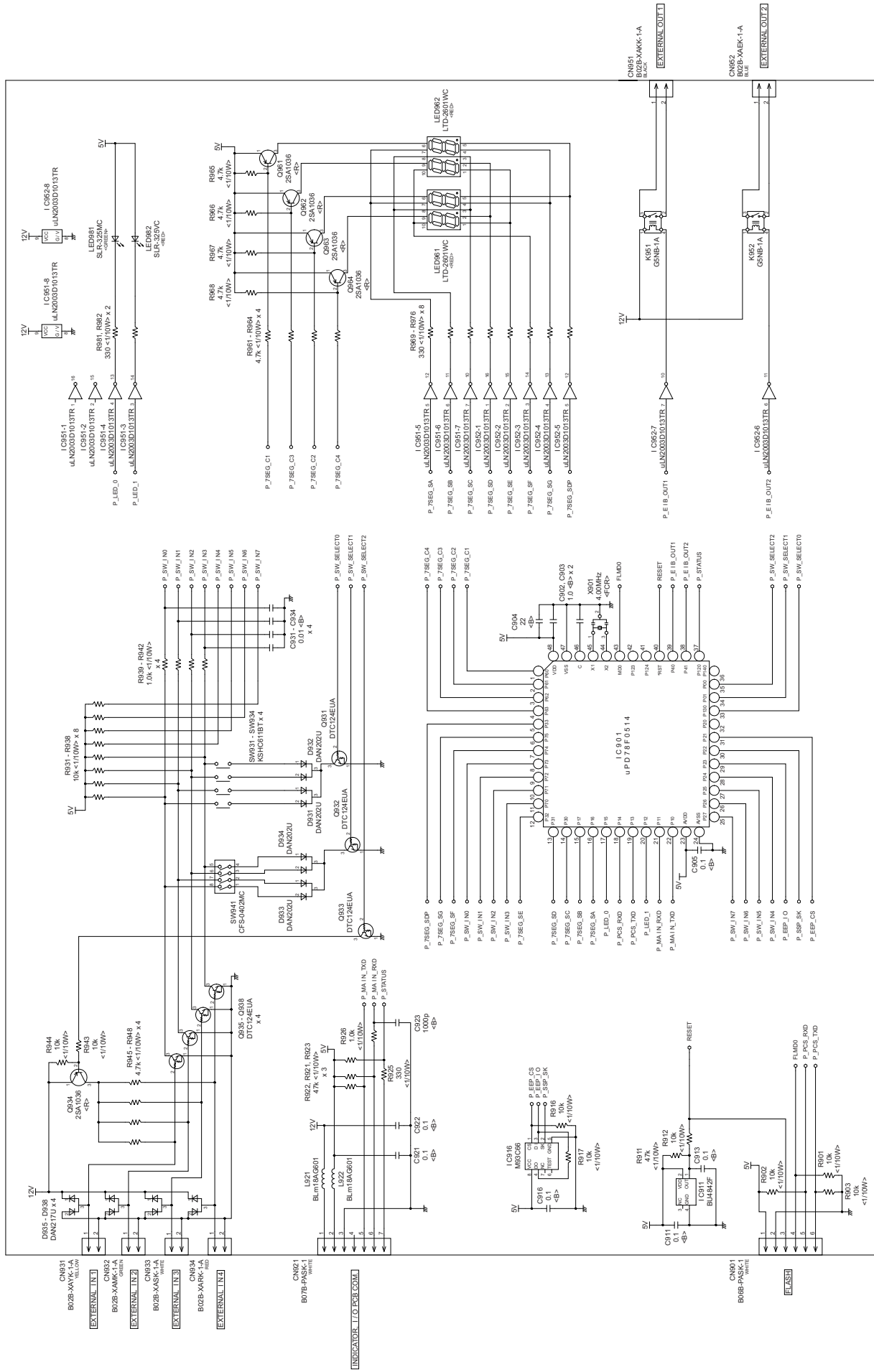
**OUTDOOR UNIT  
INVERTER PCB ASSEMBLY  
K09CC-0900HUE-TR1**



OUTDOOR UNIT  
 FILTER PCB ASSEMBLY  
 K09CR-0900HUE-FLO



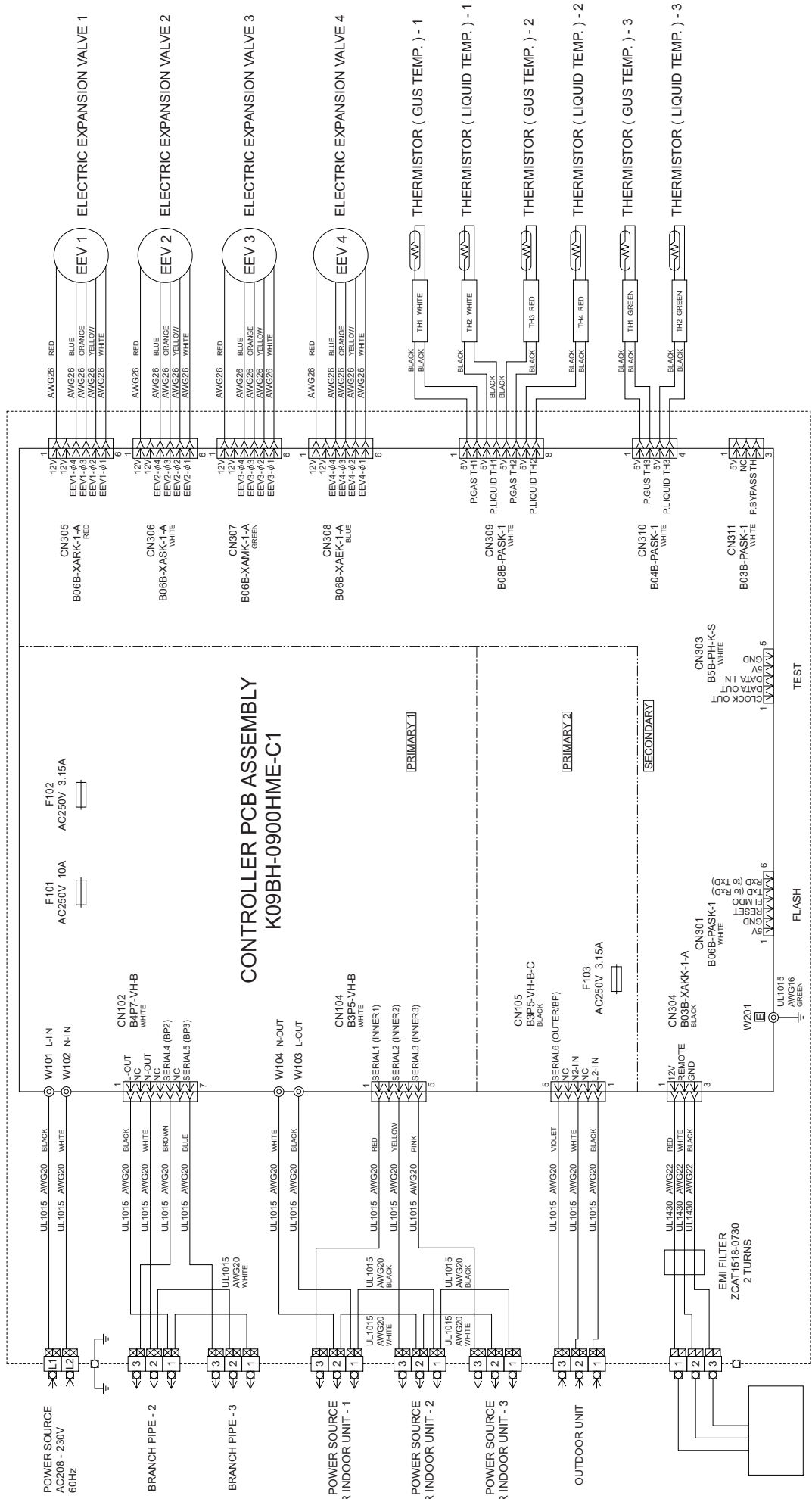
OUTDOOR UNIT  
INDICATOR, I/O PCB ASSEMBLY  
K09BI-0900HUE-C1



# BRANCH BOX PCB CIRCUIT DIAGRAM

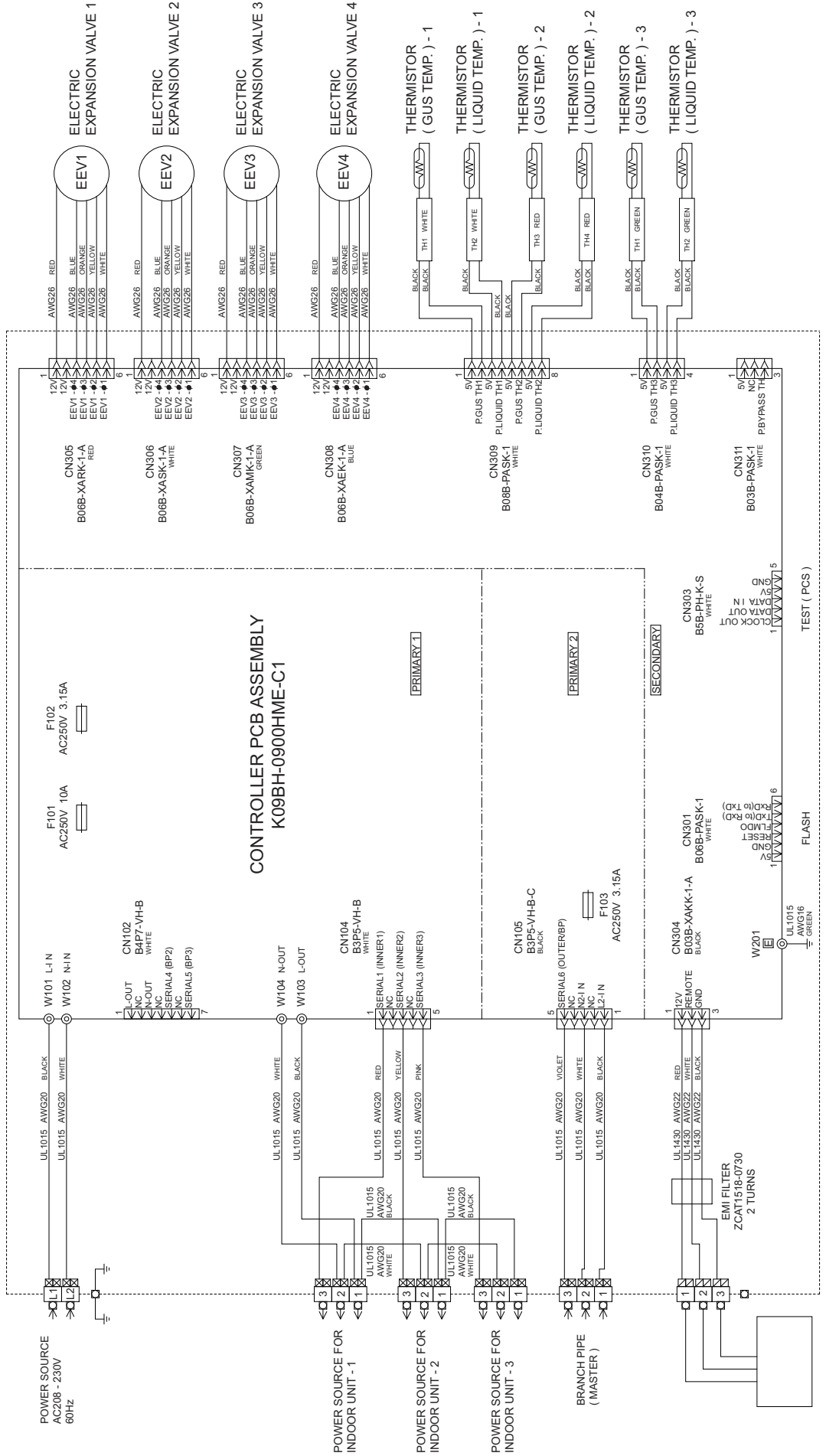
UTP-PU03A

CONTROL UNIT  
EZ-0090HME

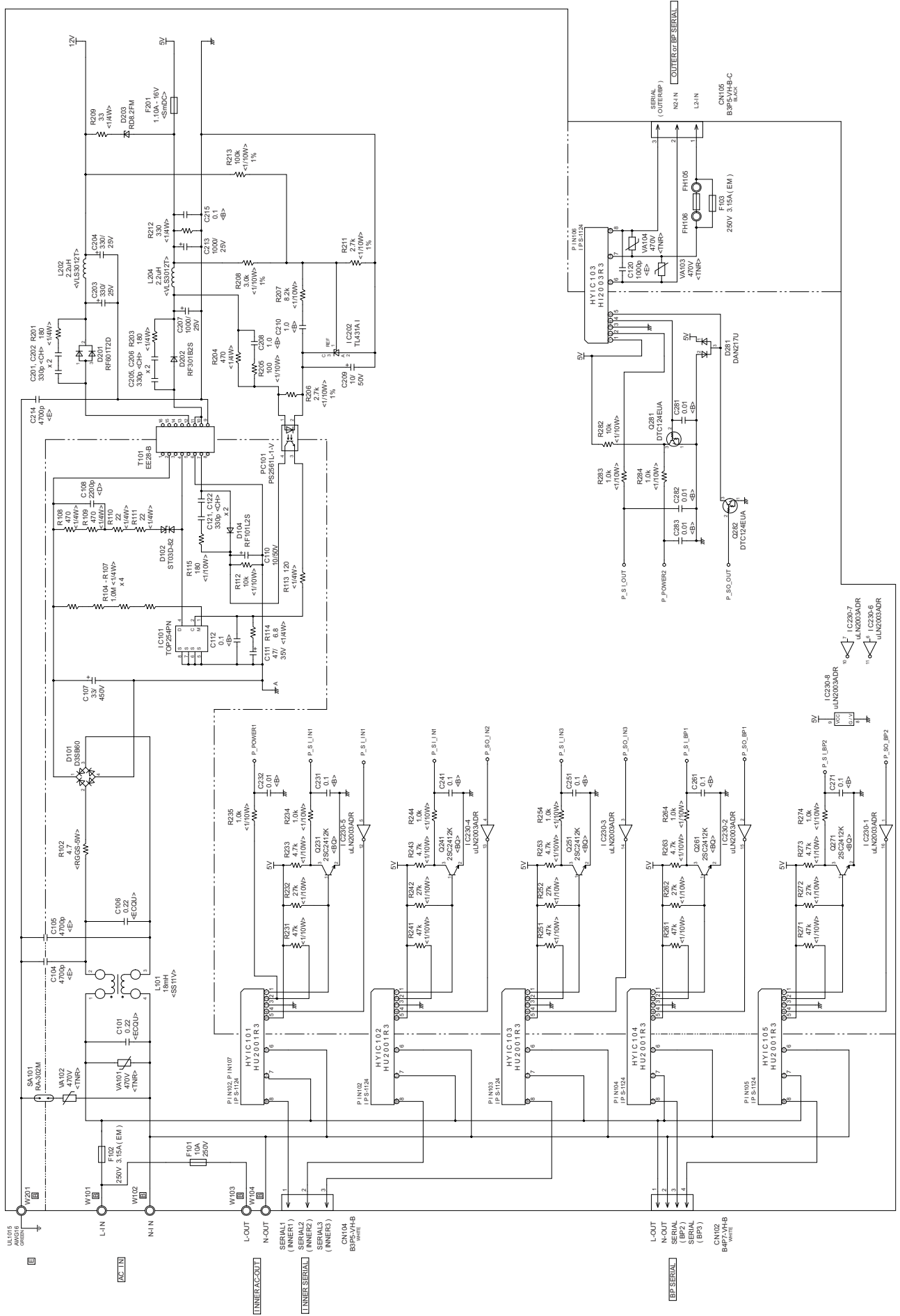


**CONTROL UNIT  
EZ-0100HME**

**BRANCH BOX  
UTP-PU03B**

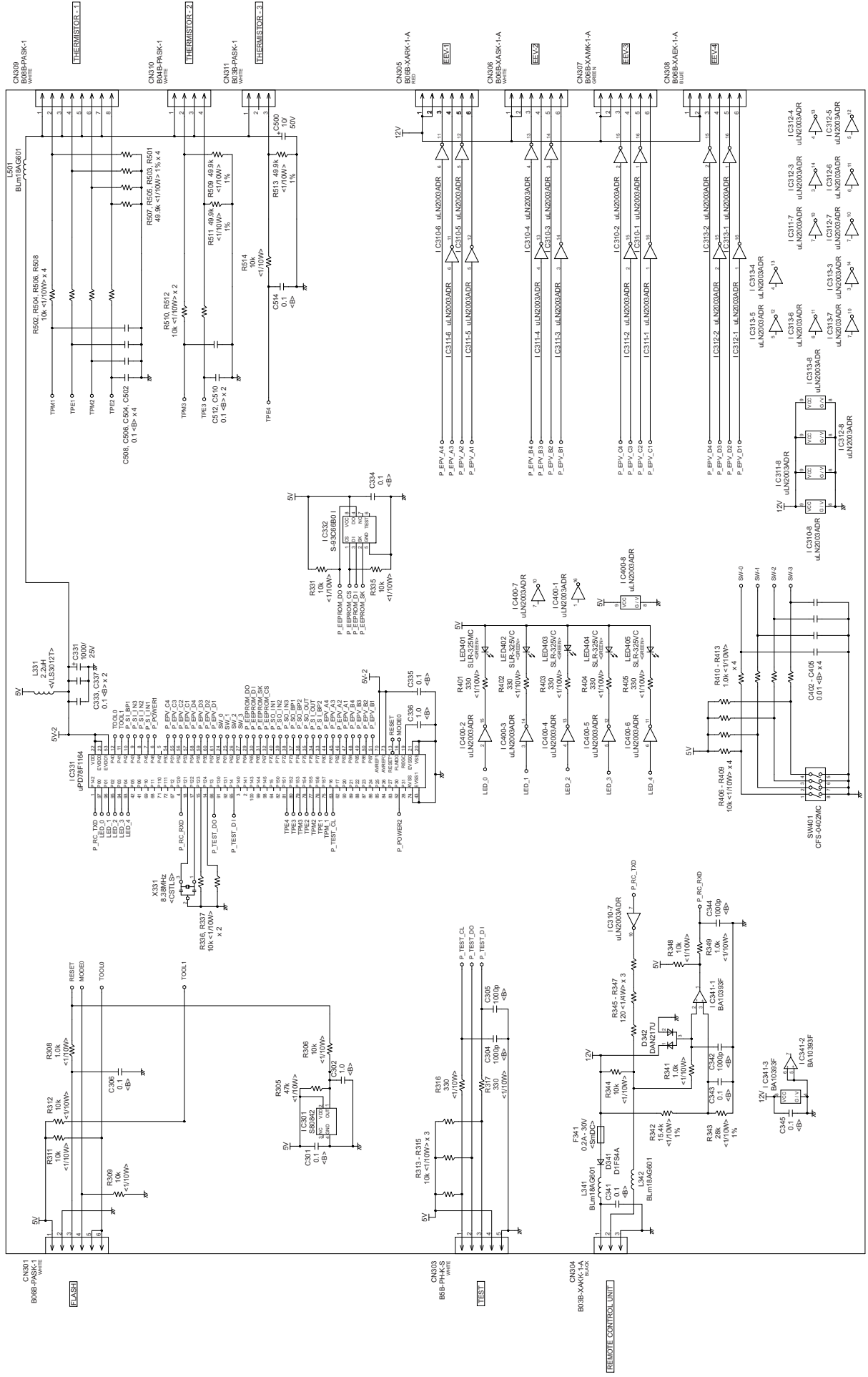


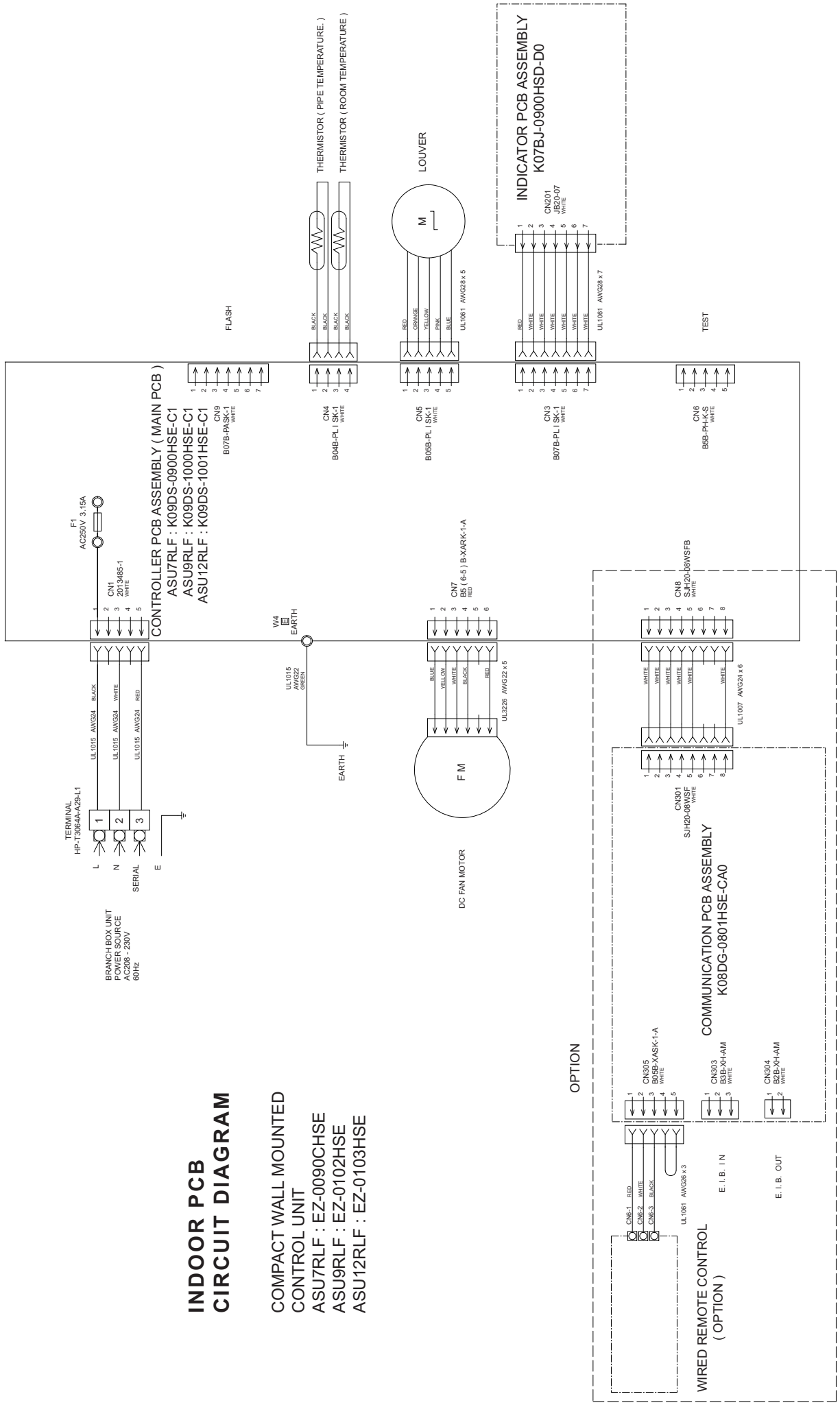
BRANCH BOX  
CONTROLLER PCB ASSEMBLY - 1  
K09BH-0900HME-C1



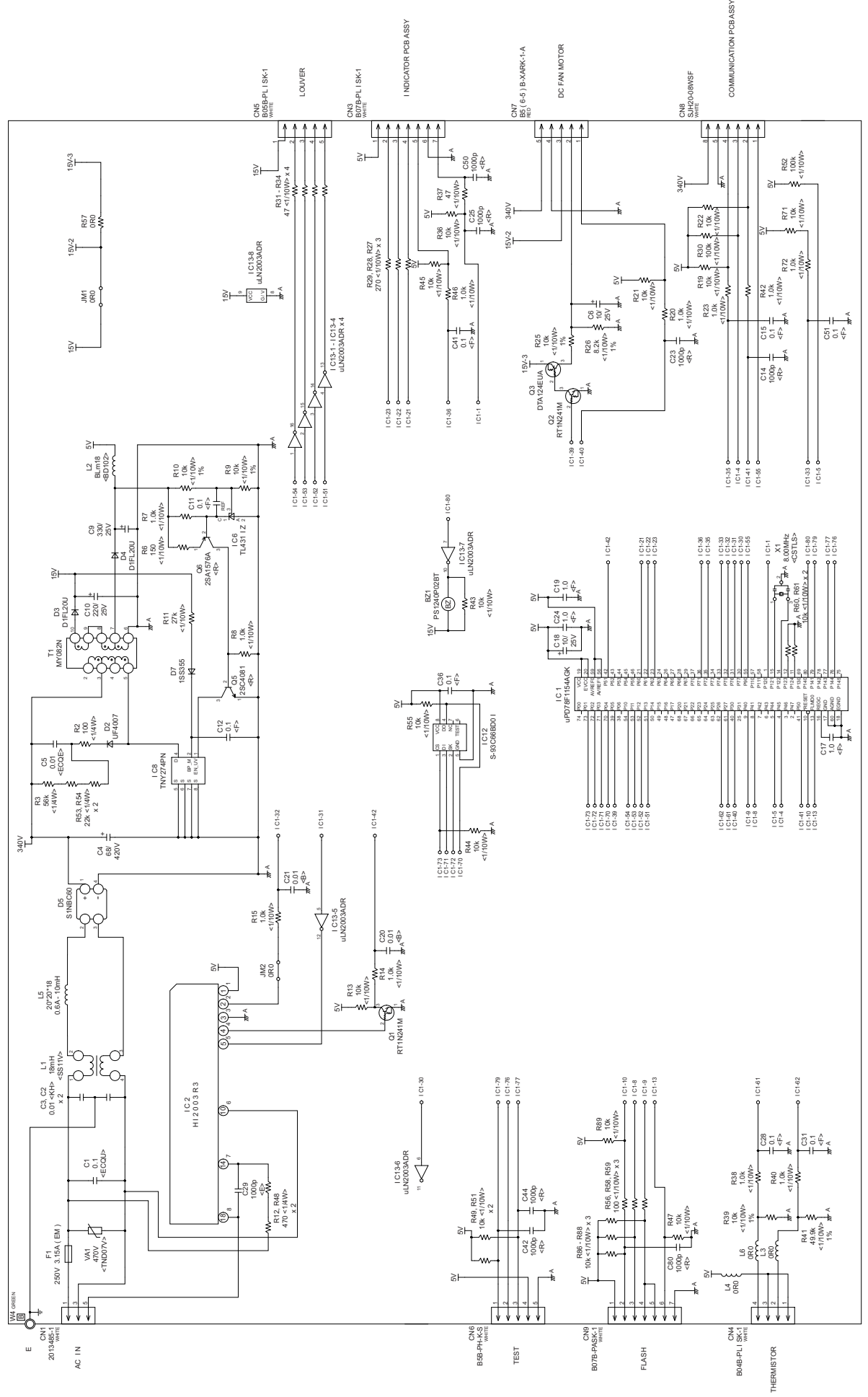


**BRANCH BOX  
CONTROLLER PCB ASSEMBLY - 2  
K09BH-0900HME-C1**

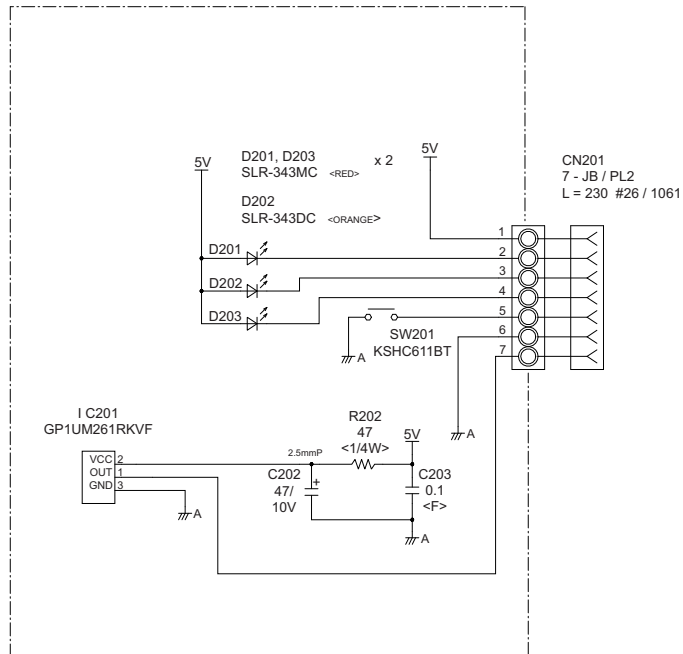




INDOOR UNIT  
 COMPACT WALL MOUNTED  
 CONTROLLER PCB ASSEMBLY ( MAIN PCB )  
 ASU7RLF : K09DS-0900HSE-C1  
 ASU9RLF : K09DS-1000HSE-C1  
 ASU12RLF : K09DS-1001HSE-C1

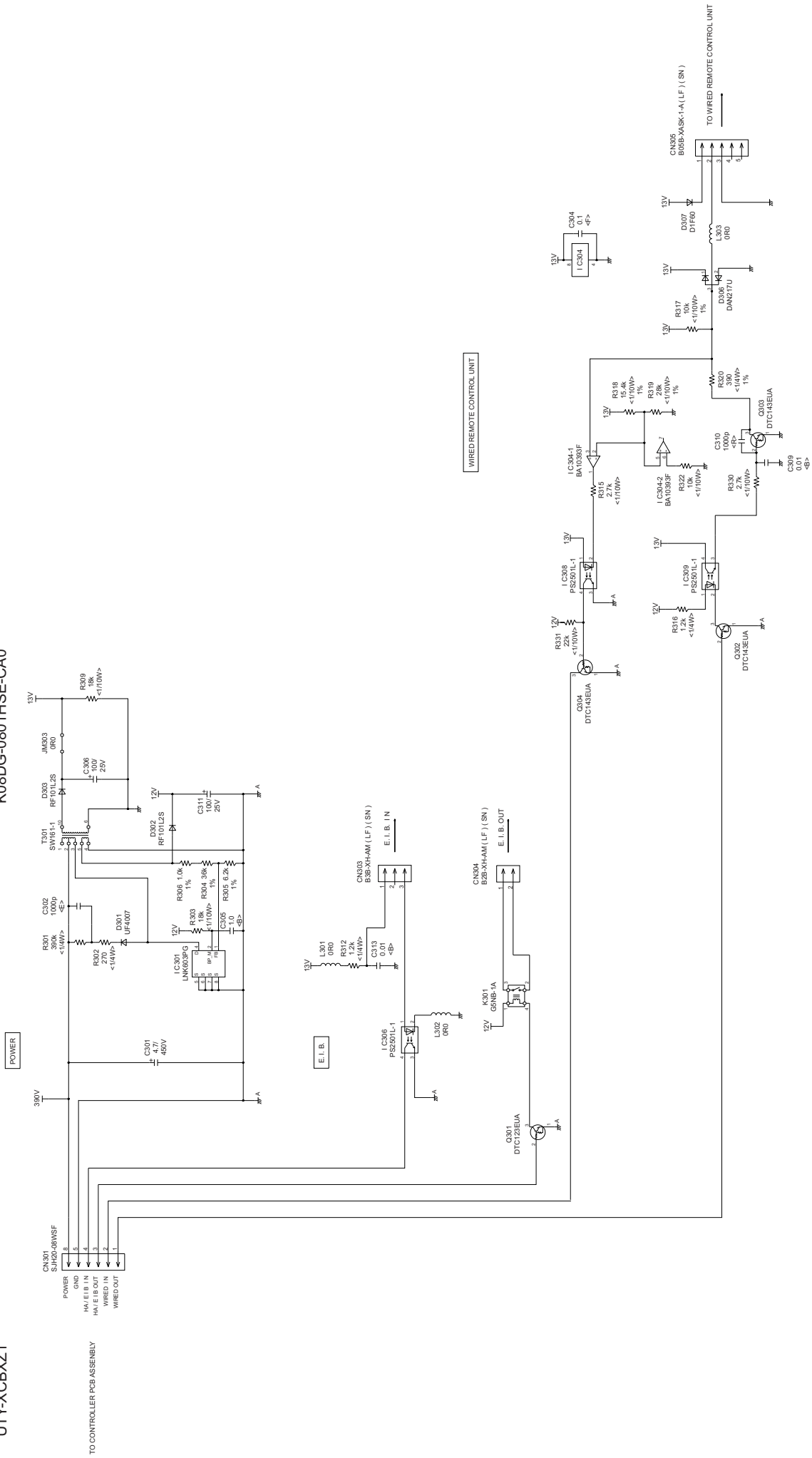


INDOOR UNIT  
 COMPACT WALL MOUNTED  
 ASU7RLF  
 ASU9RLF  
 ASU12RLF  
 INDICATOR PCB ASSEMBLY  
 K07BJ-0900HSD-D0

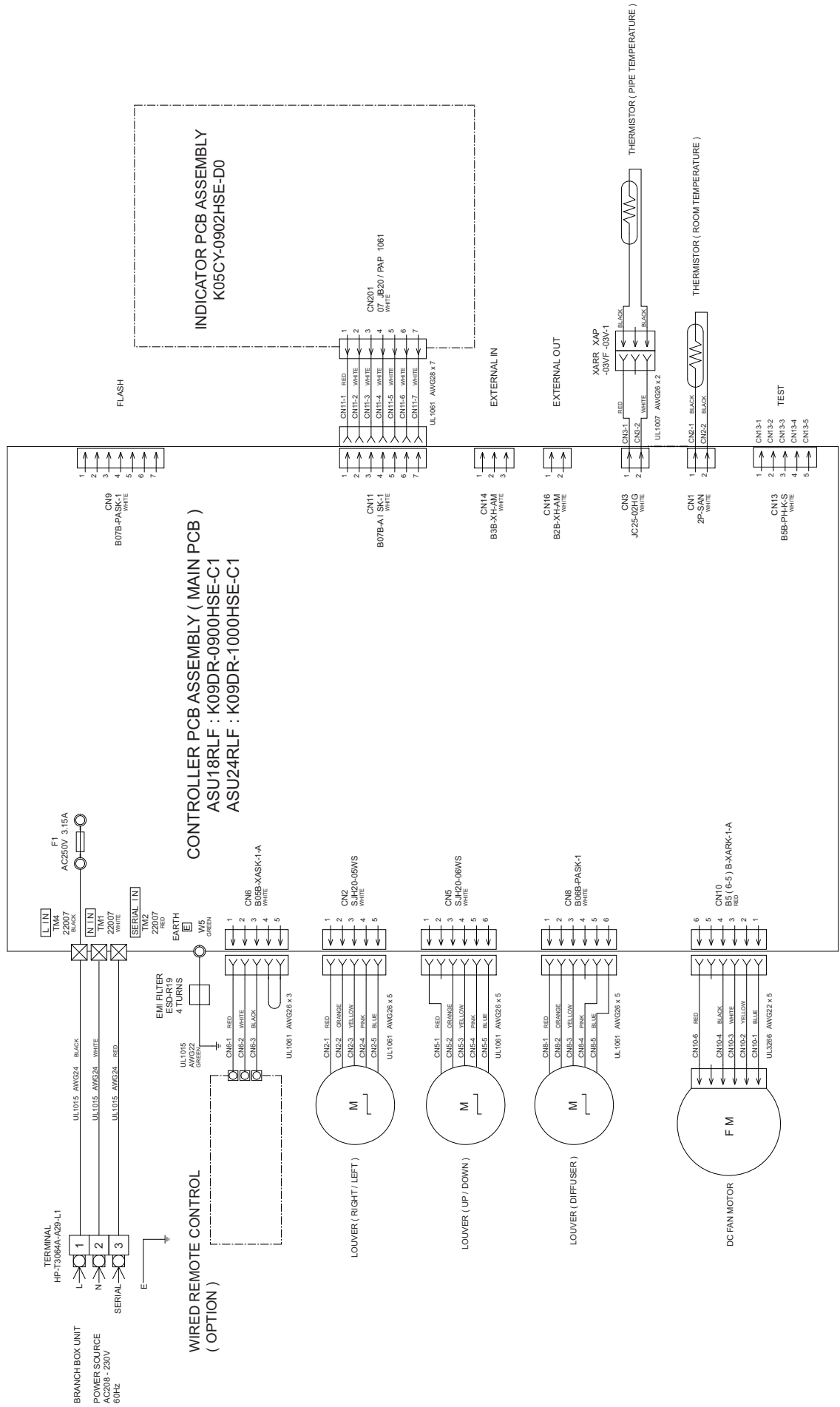


COMMUNICATION KIT  
UTY-XCBXZ1

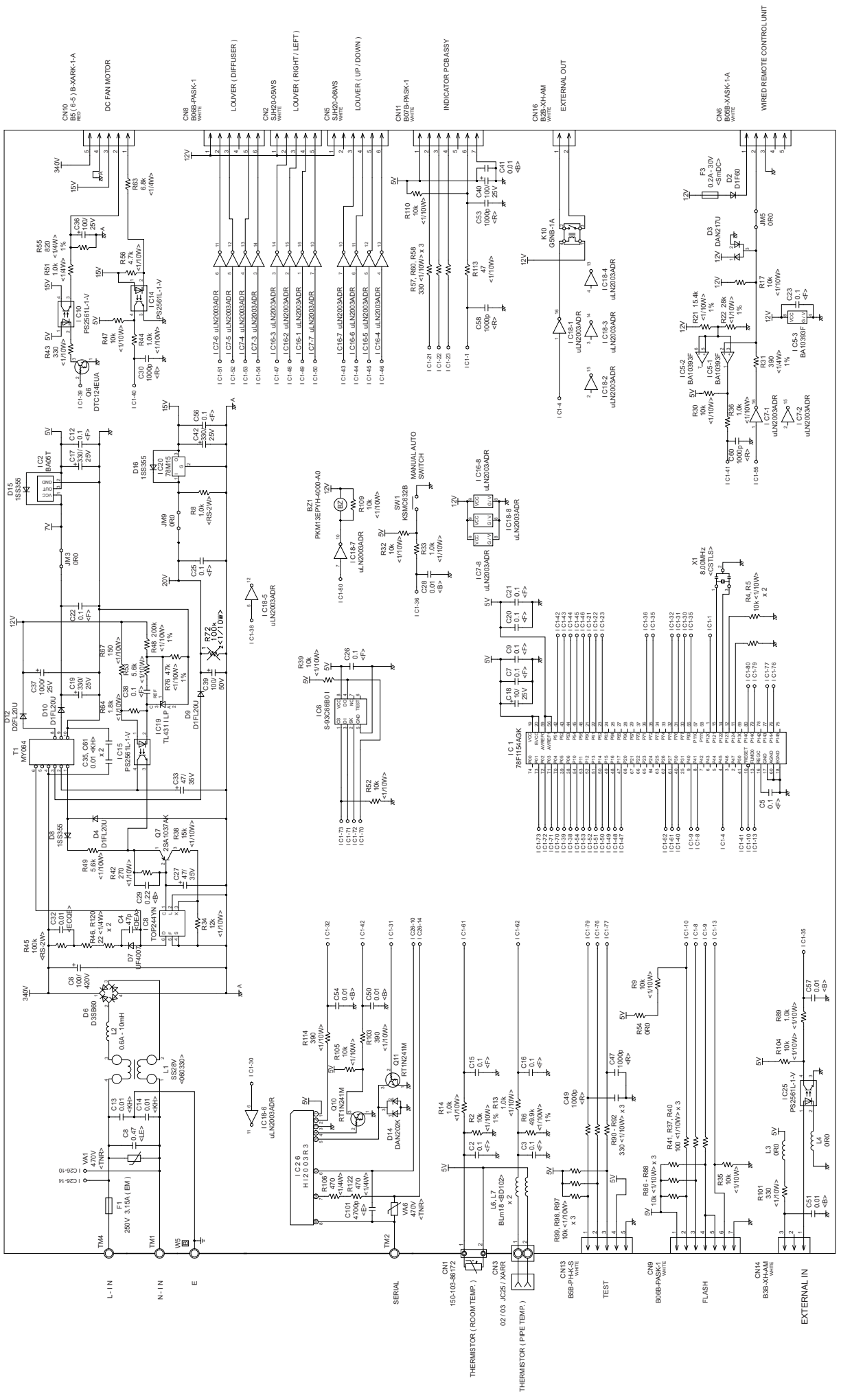
COMMUNICATION PCB ASSEMBLY  
K08DG-0801HSE-CA0



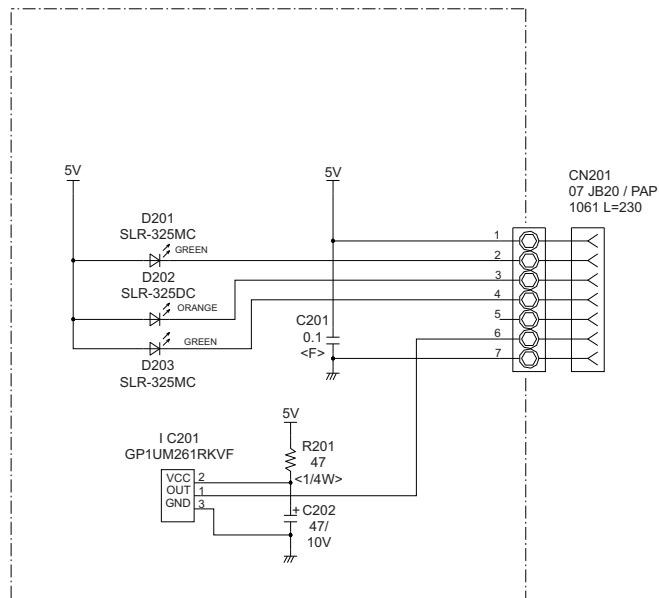
INDOOR UNIT  
WALL MOUNTED  
CONTROL UNIT  
ASU18RLF : EZ-0090DHSE  
ASU24RLF : EZ-0104HSE



INDOOR UNIT  
 WALL MOUNTED  
 CONTROLLER PCB ASSEMBLY ( MAIN PCB )  
 ASU18RLF : K09DR-0900HSE-C1  
 ASU24RLF : K09DR-1000HSE-C1

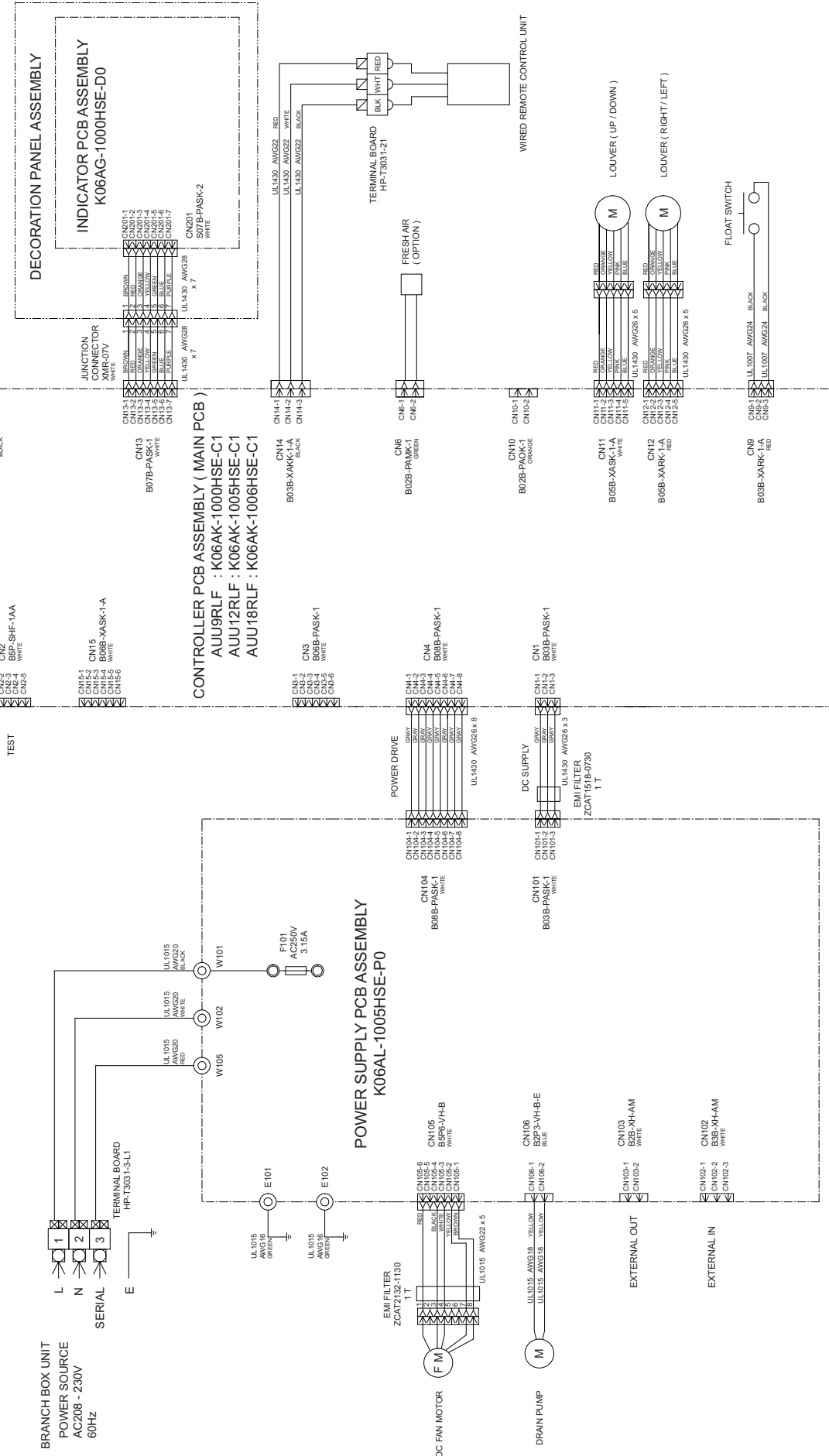


INDOOR UNIT  
WALL MOUNTED  
ASU18RLF  
ASU24RLF  
INDICATOR PCB ASSEMBLY  
K05CY-0902HSE-D0

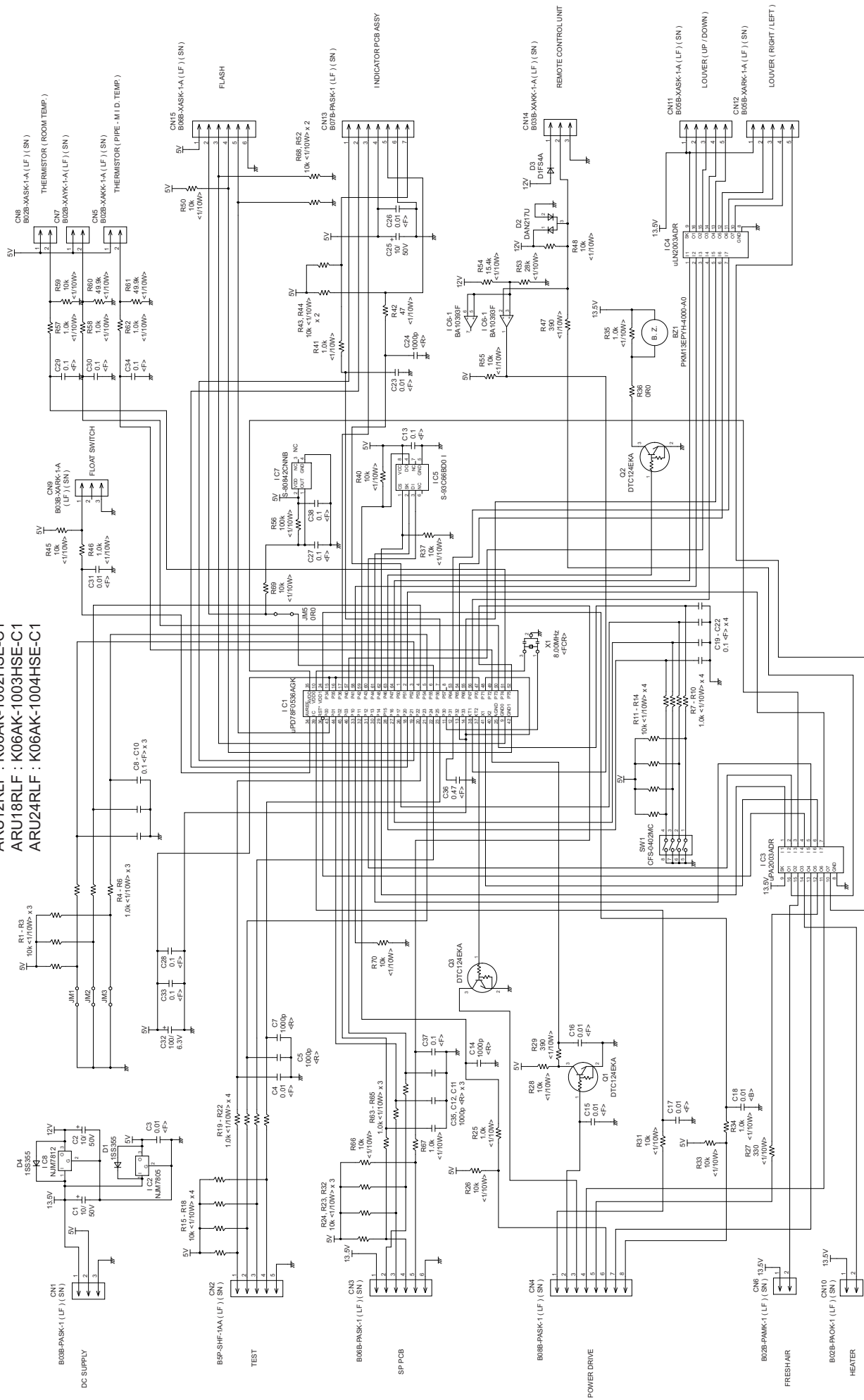


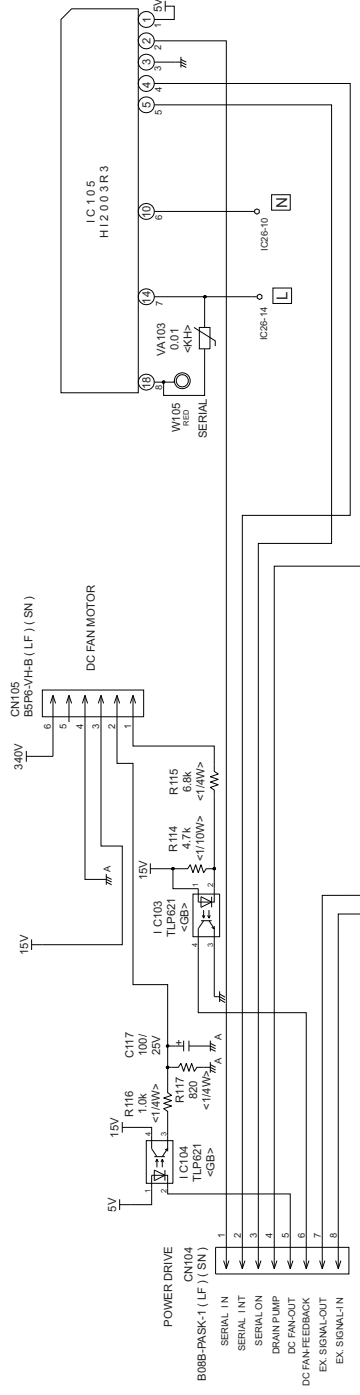
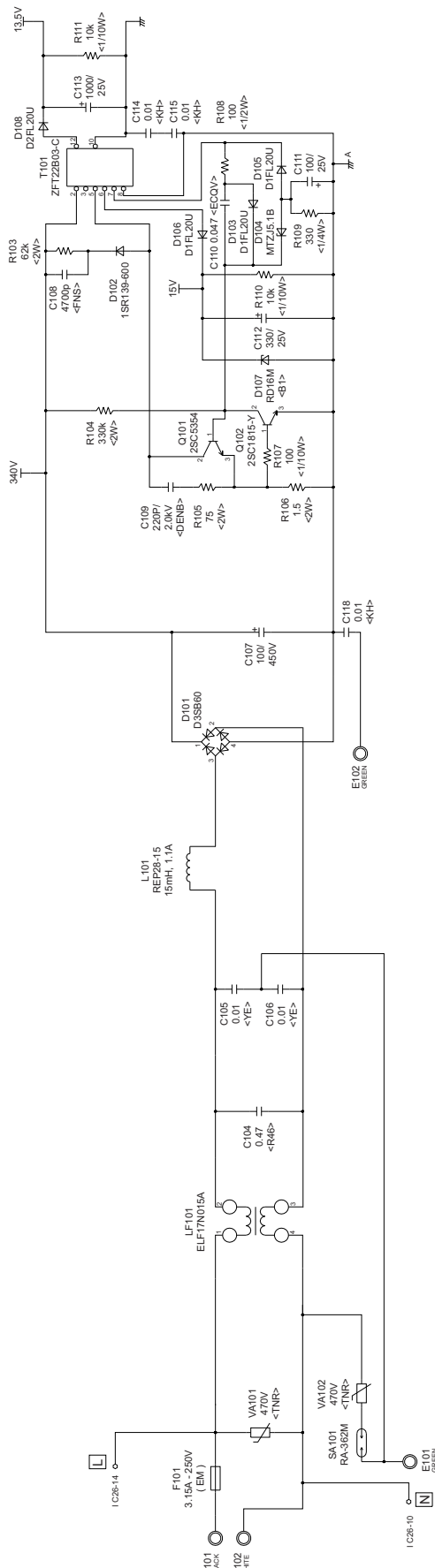


INDOOR UNIT  
 COMPACT CASSETTE  
 CONTROL UNIT  
 AUU9RLF : EZ-0100HSE  
 AUU12RLF : EZ-0105HSE  
 AUU18RLF : EZ-0106HSE

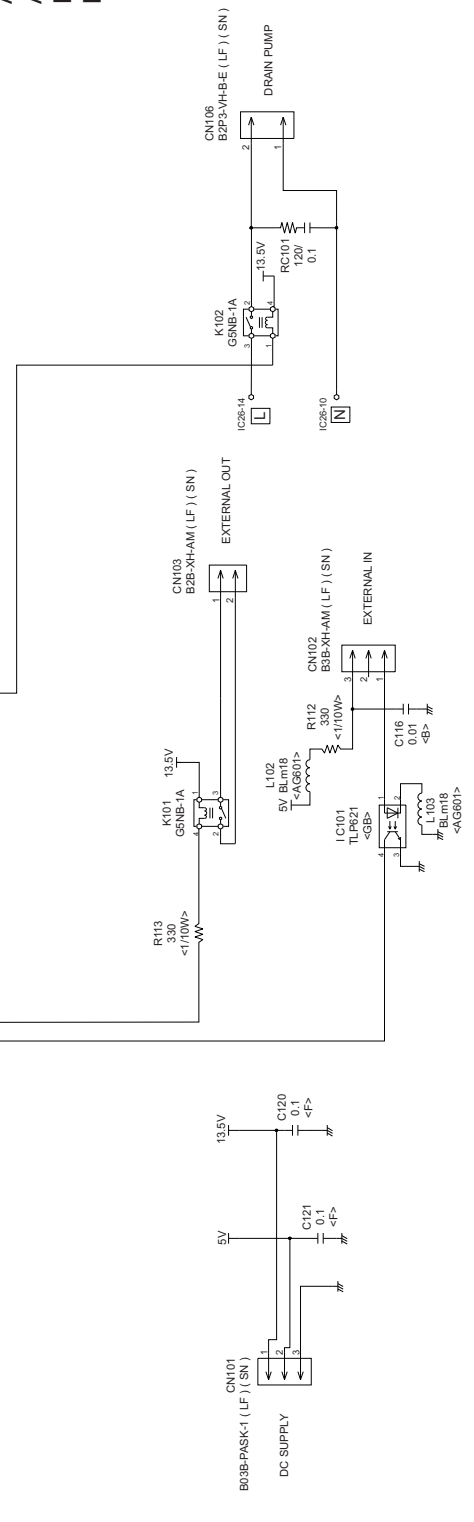


INDOOR UNIT  
 CONTROLLER PCB ASSEMBLY ( MAIN PCB )  
 AUU9RLF : K06AK-1000HSE-C1  
 AUU12RLF : K06AK-1005HSE-C1  
 AUU18RLF : K06AK-1006HSE-C1  
 ARU9RLF : K06AK-1001HSE-C1  
 ARU12RLF : K06AK-1002HSE-C1  
 ARU18RLF : K06AK-1003HSE-C1  
 ARU24RLF : K06AK-1004HSE-C1

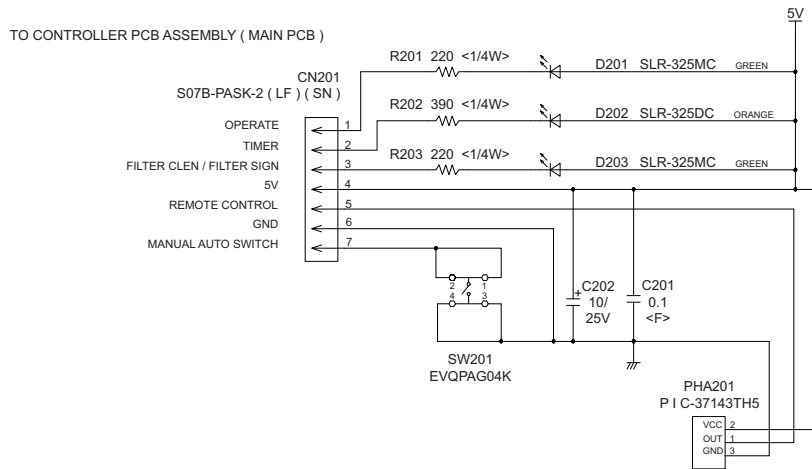




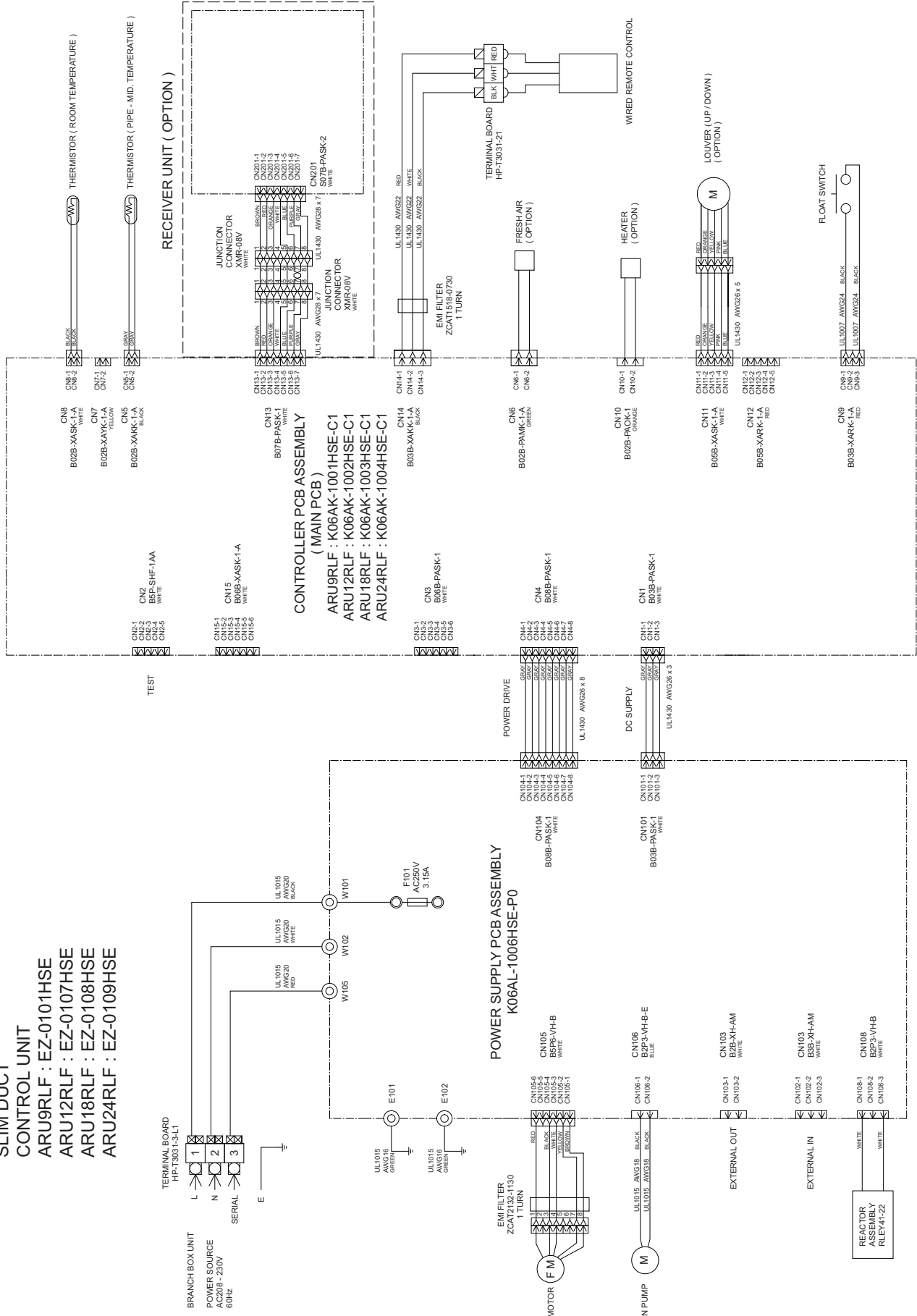
**INDOOR UNIT  
 COMPACT CASSETTE  
 AUU9RLF  
 AUU12RLF  
 AUU18RLF  
 POWER SUPPLY PCB ASSEMBLY  
 K06AL-1005HSE-PO**

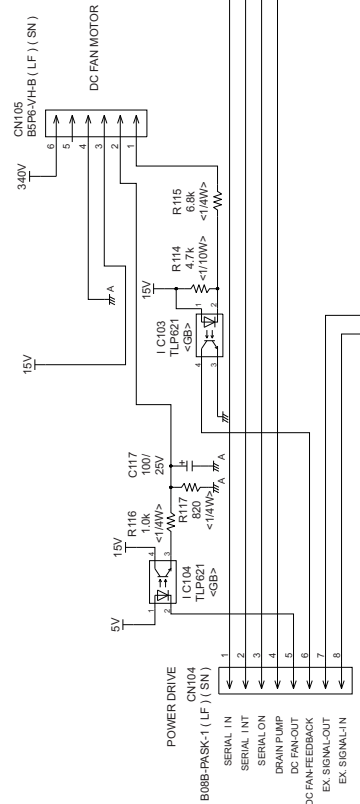
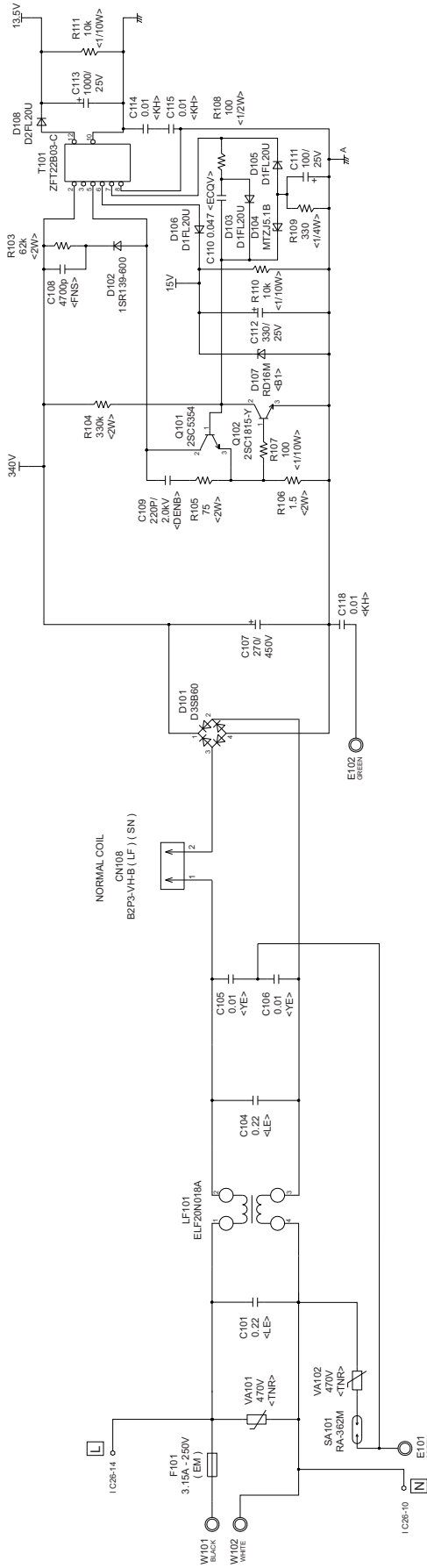


INDOOR UNIT  
 COMPACT CASSETTE  
 AUU9RLF  
 AUU12RLF  
 AUU18RLF  
 INDICATOR PCB ASSEMBLY ( OPTION )  
 K06AG-1000HSE-D0

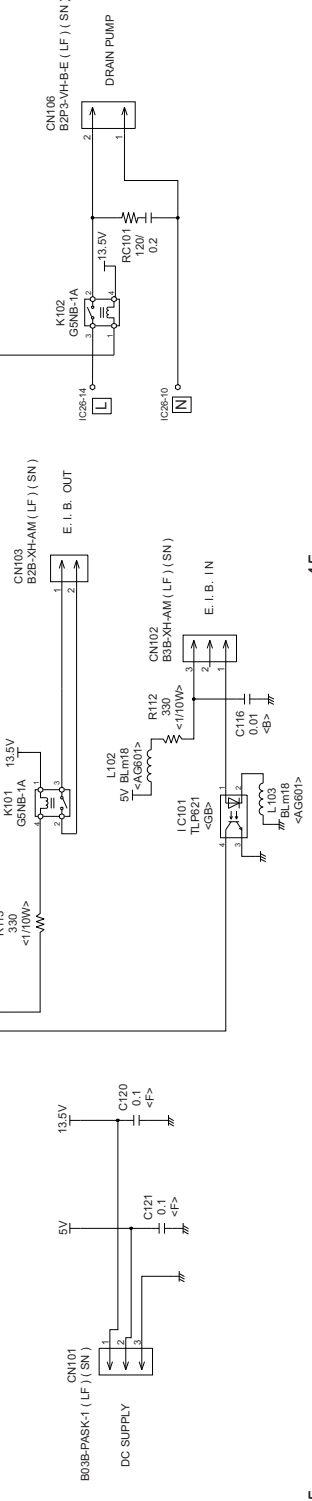


**INDOOR UNIT  
SLIM DUCT  
CONTROL UNIT**  
 ARU9RLF : EZ-0101HSE  
 ARU12RLF : EZ-0107HSE  
 ARU18RLF : EZ-0108HSE  
 ARU24RLF : EZ-0109HSE

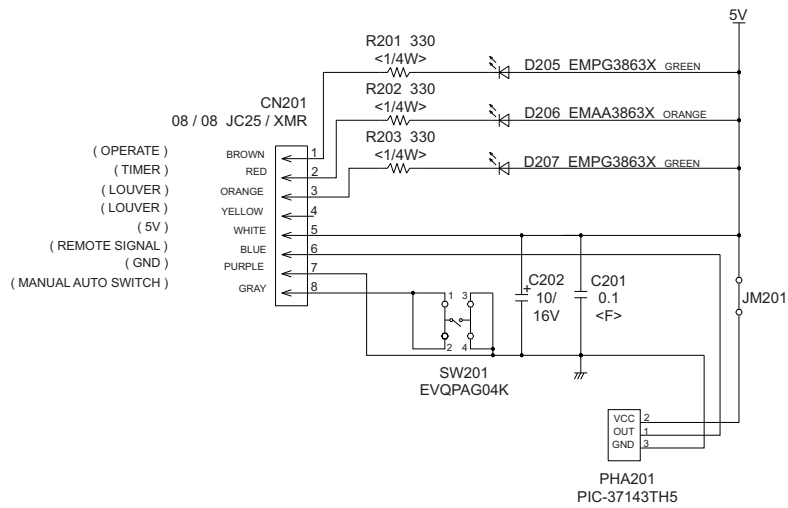




INDOOR UNIT  
SLIM DUCT  
ARU9RLF  
ARU12RLF  
ARU18RLF  
ARU24RLF  
POWER SUPPLY PCB ASSEMBLY  
K06AL-1006HSE-P0



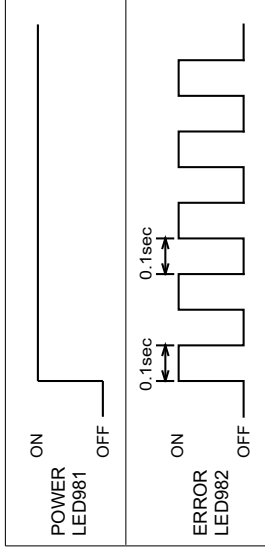
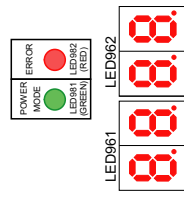
INDOOR UNIT  
 SLIM DUCT  
 ARU9RLF  
 ARU12RLF  
 ARU18RLF  
 ARU24RLF  
 INDICATOR PCB ASSEMBLY ( OPTION )  
 K04EI-1000HSE-D0



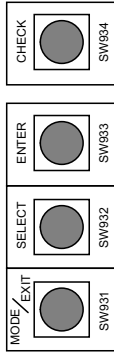
# ERROR DETECTION

## OUTDOOR UNIT

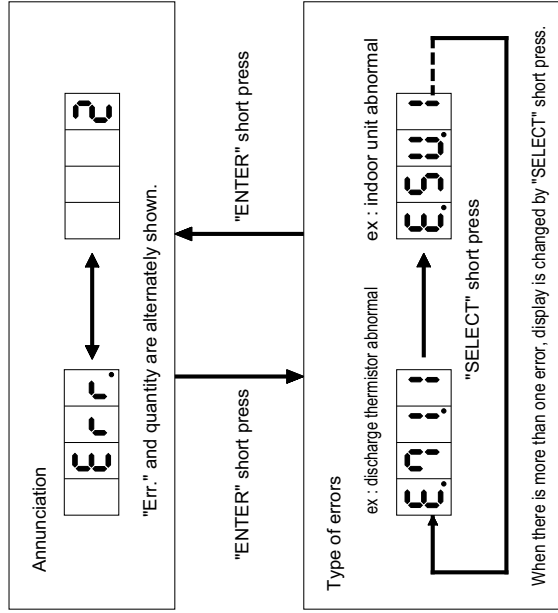
### LED display



### Operation button



### ERROR transition



Short press : less than 3 seconds  
Long press : more than 3 seconds

If some error newly occurs or is resolved during transition, it is reflected after going back to "Annunciation".

Error Code	Error Contents
E. 1 1. 3	Serial communication error
E. 1 1. 4	Serial communication error
E. 1 5. 6	Check run unfinished
E. 2 1. 2	Number of wires and pipes error
E. 2 2. 1	Indoor unit capacity error
E. 2 4. 2	Number of indoor units error
E. 2 4. 3	Number of branch boxes error
E. 5 U. 1	Indoor unit error
E. 6 2. 1	Outdoor unit model information error
E. 6 3. 1	Inverter error
E. 6 4. 1	A.F. voltage error
E. 7 1. 1	Discharge thermistor error
E. 7 2. 1	Compressor thermistor error
E. 7 3. 3	Heat ex. liquid outlet thermistor error
E. 7 4. 1	Outdoor thermistor error
E. 7 5. 1	Suction gas thermistor error
E. 7 7. 1	Heat sink thermistor error
E. 8 2. 1	Sub cool heat ex. gas inlet thermistor error
E. 8 2. 2	Sub cool heat ex. gas outlet thermistor error
E. 8 3. 1	Liquid pipe thermistor error
E. 8 4. 1	Current sensor error
E. 8 6. 1	Discharge pressure sensor error
E. 8 6. 3	Suction pressure sensor error
E. 8 6. 4	High pressure switch error
E. 9 4. 1	Over current error
E. 9 5. 1	Compressor control error
E. 9 7. 3	Outdoor unit fan motor error
E. 9 9. 1	4-way valve error
E. A 1. 1	Discharge temperature error
E. A 3. 1	Compressor temperature error
E. A 5. 1	Low pressure error
E. J 2. U	Branch boxes error



## BRANCH BOX

When an error occurs, an error description displays in the LED (No.401 - 405).

●	Lit
◎ (n)	Flashing (number of flashing)
○	Unlit

Green	Red				Comment	
	LED401	LED402	LED403	LED404		LED405
●	●	●	●	●	●	Connected combination error
●	●	●	●	●	○	Power frequency error
●	●	●	○	●	●	
Branch box identifying display	◎(1)	○	○	○	○	EEPROM access error
	◎(2)	○	○	○	○	Model information error
	◎(3)	○	○	○	○	Serial communication error between Outdoor Unit and branch box
						Serial communication error between branch boxes
◎(4)	○	○	○	○	Serial communication error between branch boxes	
Primary unit : ◎(1)	◎(5)	●	○	○	○	Serial communication error between Indoor Unit A and branch box
		○	●	○	○	Serial communication error between Indoor Unit B and branch box
		○	○	○	●	Serial communication error between Indoor Unit C and branch box
Secondary unit1 : ◎(2)	◎(6)	●	○	○	○	Indoor Unit A, liquid pipe thermistor error (CN309)
		○	●	○	○	Indoor Unit B, liquid pipe thermistor error (CN309)
		○	○	○	●	Indoor Unit C, liquid pipe thermistor error (CN310)
Secondary unit2 : ◎(3)	◎(7)	●	○	○	○	Indoor Unit A, gas pipe thermistor error (CN309)
		○	●	○	○	Indoor Unit B, gas pipe thermistor error (CN309)
		○	○	○	●	Indoor Unit C, gas pipe thermistor error (CN310)
◎(8)	◎(8)	●	○	○	○	Indoor Unit A, EEV control error (CN305)
		○	●	○	○	Indoor Unit B, EEV control error (CN306)
		○	○	○	●	Indoor Unit C, EEV control error (CN307)
◎(9)	◎(9)	○	○	○	○	Remote control communication error

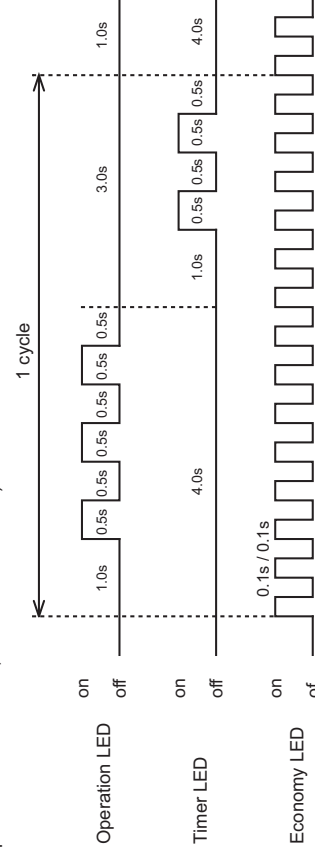
## INDOOR UNIT

Error Contents	Operation LED	Timer LED	Economy LED
Serial Communication Error	1 times flash	1 times flash	Continuous flash
Wired Remote Controller Communication Error	1 times flash	2 times flash	Continuous flash
Check Run Unfinished	1 times flash	5 times flash	Continuous flash
Number of Wires and Pipes Error	2 times flash	1 times flash	Continuous flash
Indoor Unit Capacity Error	2 times flash	2 times flash	Continuous flash
Connected Combination Error	2 times flash	3 times flash	Continuous flash
Number of Indoor Units Error Number of Branch boxes Error	2 times flash	4 times flash	Continuous flash
Indoor Unit Model Information Error EEPROM Access Abnormal	3 times flash	2 times flash	Continuous flash
Manual Auto Switch Error	3 times flash	5 times flash	Continuous flash
Indoor Room Thermistor Error	4 times flash	1 times flash	Continuous flash
Indoor Heat Ex. Thermistor Error	4 times flash	2 times flash	Continuous flash
Indoor Unit Fan Motor Error	5 times flash	1 times flash	Continuous flash
Drainage Error	5 times flash	3 times flash	Continuous flash
Outdoor Unit Model Information Error	6 times flash	2 times flash	Continuous flash
Inverter Error	6 times flash	3 times flash	Continuous flash
A. F. Voltage Error	6 times flash	4 times flash	Continuous flash
I.P.M. Error	6 times flash	5 times flash	Continuous flash
Display P.C.B. Communication Error	6 times flash	10 times flash	Continuous flash
Discharge Thermistor Error	7 times flash	1 times flash	Continuous flash
Compressor Thermistor Error	7 times flash	2 times flash	Continuous flash
Heat Ex. Liquid Outlet Thermistor Error	7 times flash	3 times flash	Continuous flash
Outdoor Thermistor Error	7 times flash	4 times flash	Continuous flash
Suction Gas Thermistor Error	7 times flash	5 times flash	Continuous flash
Heat Sink Thermistor Error	7 times flash	7 times flash	Continuous flash

Error Contents	Operation LED	Timer LED	Economy LED
Sub-Cool Heat Ex. Gas Inlet Thermistor Error	8 times flash	2 times flash	Continuous flash
Sub-Cool Heat Ex. Gas Outlet Thermistor Error	8 times flash	3 times flash	Continuous flash
Liquid Pipe Thermistor Error	8 times flash	4 times flash	Continuous flash
Current Sensor Error	8 times flash	6 times flash	Continuous flash
Discharge Pressure Sensor Error Suction Pressure Sensor Error High Pressure Switch Error	9 times flash	4 times flash	Continuous flash
Over Current Error	9 times flash	5 times flash	Continuous flash
Compressor Control Error	9 times flash	7 times flash	Continuous flash
Outdoor Unit Fan Motor Error	9 times flash	9 times flash	Continuous flash
4 Way Valve Error	10 times flash	1 times flash	Continuous flash
Compressor Temp. Error	10 times flash	3 times flash	Continuous flash
Compressor Temp. Error	10 times flash	5 times flash	Continuous flash
Low Pressure Error	13 times flash	2 times flash	Continuous flash

### Flashing pattern example

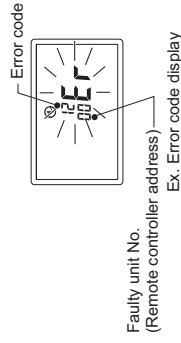
Indoor unit main PCB error  
(Operation LED : 3 times, Timer LED : 2 times)



## REMOTE CONTROL

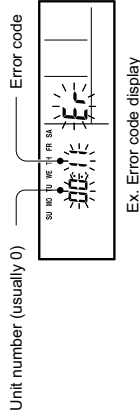
### SIMPLE REMOTE CONTROLLER

If an error occurs, the following display will be shown.  
 ("Er" will appear in the set room temperature display.)  
 If "Er" is displayed, immediately contact authorized service personnel.



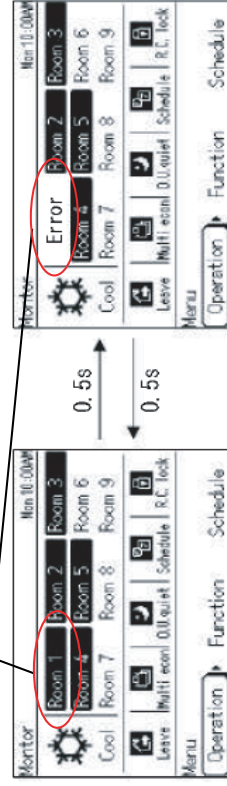
### WIRED REMOTE CONTROLLER

If an error occurs, the following display will be shown.  
 ("Er" will appear in the set room temperature display.)  
 If "Er" is displayed, immediately contact authorized service personnel.



### CENTRAL REMOTE CONTROLLER

To show which indoor unit is the error displayed, indoor unit's name and "ERROR" are alternately shown. (0.5s indoor unit's name / 0.5s "ERROR")



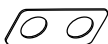



Error Code	Error Contents
8 2	Sub-Cool Heat Ex.Gas Inlet Thermistor Error Sub-Cool Heat Ex.Gas Outlet Thermistor Error
8 3	Liquid Pipe Thermistor Error
8 4	Current Sensor Error
8 6	Discharge Pressure Sensor Error Suction Pressure Sensor Error High Pressure Switch Error
9 4	Over Current Error
9 5	Compressor Control Error
9 7	Outdoor Unit Fan Motor Error
9 9	4 Way Valve Error
A 1	Discharge Temp. Error
A 3	Compressor Temp. Error
A 5	Low Pressure Error
J 2	Branch Boxes Error


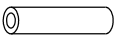











Error Code	Error Contents
1 1	Serial Communication Error
1 2	Wired Remote Controller Communication Error
1 5	Check Run Unfinished
2 1	Number of Wires and Pipes Error
2 2	Indoor Unit Capacity Error
2 3	Connected Combination Error
2 4	Number of Indoor Units Error Number of Branch boxes Error
3 2	Indoor Unit Model Information Error EEPROM Access Abnormal
3 5	Manual Auto Switch Error
4 1	Indoor Room Thermistor Error
4 2	Indoor Heat Ex. Thermistor Error
5 1	Indoor Unit Fan Motor Error
5 3	Drainage Error
6 2	Outdoor Unit Model Information Error
6 3	Inverter Error
6 4	A. F. Voltage Error
6 5	I.P.M. Error
6 A	Display P.C.B. Communication Error
7 1	Discharge Thermistor Error
7 2	Compressor Thermistor Error
7 3	Heat Ex. Liquid Outlet Thermistor Error
7 4	Outdoor Thermistor Error
7 5	Suction Gas Thermistor Error
7 7	Heat Sink Thermistor Error

# ACCESSORIES

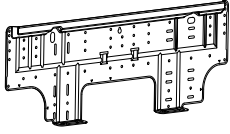
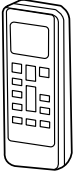



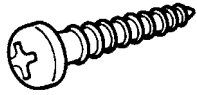

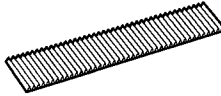
## OUTDOOR UNIT

Parts	Q'ty	Application	Parts number
Drain Assy 	1	For outdoor unit drain piping work	9303029015
Drain Cap 	7		313166024302
Conduit Plate 	1	To fix conduit	9379938006
Binder 	3	For binding power cable and connection cable	9374688012

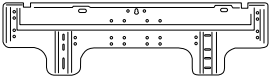
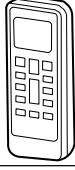




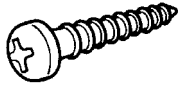
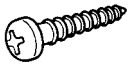
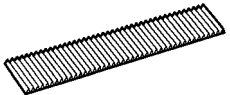
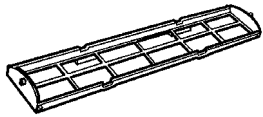
## BRANCH BOX

Parts	Q'ty	Application	Parts number
Coupler heat insulation (large) 	4	For indoor and outdoor side pipe joint (gas pipe)	9378173569
Coupler heat insulation (small) 	4	For indoor and outdoor side pipe joint (liquid pipe)	9378173521
Insulation (long) 	3	For use on the section where the insulation fits onto this equipment. (indoor unit side)	9375620028
Insulation (short) 	3	For use on the section where the insulation fits onto this equipment. (outdoor unit side)	9375620035
Insulation 	3	To be used with this equipment's (indoor unit side) piping	9379779005
Hanger 	4	For suspending the Branch box from ceiling	9379778008
Washer 	8	For suspending the Branch box from ceiling	0700132278
Tapping screw 	8	For installing the hanger (Ø 4×10)	-
Tapping screw 	8	For installing the branch box on the wall (Ø 4×25)	-
Binder 	1	For remote control cable binding	313035356905
Seal 	1	To prevent small animals from entering inside	9380118008
Adapter 	3	For indoor unit connection 12.7 mm (1/2 inch) -> 9.52 mm (3/8 inch)	9370244007
Adapter 	3	For indoor unit connection 12.7 mm (1/2 inch) -> 15.88 mm (5/8 inch)	9374749027





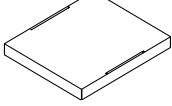
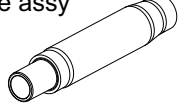


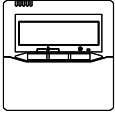
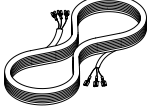

**INDOOR UNIT  
COMPACT WALL MOUNTED  
ASU7RLF, ASU9RLF, ASU12RLF**

Name and Shape	Q'ty
Wall hook bracket 	1
Remote control 	1
Battery 	2
Remote control holder 	1
Cloth tape 	1
Tapping screw (big) 	8
Tapping screw (small) 	2
Air cleaning filter 	2

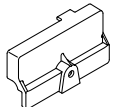



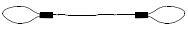


**WALL MOUNTED  
ASU18RLF, ASU24RLF**

Name and Shape	Q'ty
Wall hook bracket 	1
Remote control 	1
Battery 	1
Remote control holder 	1
Drain hose insulation 	1
Cloth tape 	1
Tapping screw (big) 	8
Tapping screw (small) 	2
Air cleaning filter 	2
Air cleaning filter frame 	2

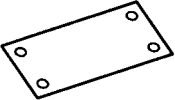




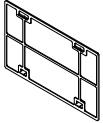
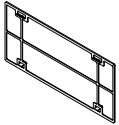
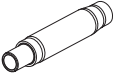





**INDOOR UNIT  
COMPACT CASSETTE  
AUU9RLF, AUU12RLF, AUU18RLF**

Name and Shape	Q'ty	Application
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Liquid pipe)
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Gas pipe)
Special nut A (Large flange) 	4	For installing indoor unit
Special nut B (Small flange) 	4	For installing indoor unit
Template (Carton top) 	1	For ceiling openings cutting Also used as packing
Drain hose assy 	1	For installing drain pipe 19 mm (3/4 in.) [O.D. 27 mm (1-1/16 in.)]
Hose band assy 	1	For installing drain pipe (3/4 in.)
Drain hose insulation 	1	For installing drain hose
Wired remote control 	1	
Remote control cable 	1	For connecting the remote control
Tapping screw (M4 × 16 mm) 	2	For installing the wired remote control

**DECORATION PANEL  
UTG-CCGF**

Name and Shape	Q'ty	Application
Connector cover 	1	For covering connector
Tapping Screw (M5 × 12 mm) 	4	For mounting decoration panel
Tapping Screw (M4 × 12 mm) 	1	For mounting connector cover
L angle 	2	For mounting the Hook Wire to the Decoration panel
Hook wire 	2	For suspending the Decoration panel
Screw [pitch small] (M4 × 10 mm) 	2	For mounting the Hook Wire (for metals)
Screw [pitch large] (M4 × 10 mm) 	4	For mounting the L angle and Hook wire (for resins)

INDOOR UNIT  
SLIM DUCT  
ARU9RLF  
ARU12RLF  
ARU18RLF  
ARU24RLF

Name and Shape	Q'ty	Application
Installation template 	1	For positioning the indoor unit
Washer 	8	For installing indoor unit
Coupler heat insulation (Large) 	1	For indoor side pipe joint (Large pipe)
Coupler heat insulation (Small) 	1	For indoor side pipe joint (Small pipe)
Binder 	Medium 3	For power supply and remote control cable binding.
	Large 4	For fixing the coupler heat insulation.
Filter (Small) 	2	(ARU9RLF ARU12RLF ARU24RLF)
Filter (Big) 	2	(ARU18RLF)
	1	(ARU24RLF)
Drain hose 	1	For installing drain pipe 3/4 in. (O.D. 1-1/16 in.)
Hose band 	1	For installing drain hose
Drain hose insulation B 	1	Insulates the drain hose
Wired remote control 	1	
Remote control cable 	1	For connecting the remote control
Tapping screw (M4 × 16 mm) 	2	For installing the remote control

1006G3809