











HVAC Contractor	1 Type Distributor Name	Search Parmer 2 Search Parmer 2 Distributor Name 2 Q tank
	Partner: Ja	100 0 Panel
* Reared Field For Partner field, please search for and choose your dealer co If you cannot find your dealer name please choose "Other" and provide Part	iner: "Ø	
in the text field below. Company Name (if First Name: found abo	f not ove)	
* Last Name: * Who is your Par * Email Address:	tor?	Click your Distributors name to add to form.
* Address Line 1:	VAC	- Partner: YOUR DISTRIBUTOR 🖉 🗉
City: Deal	ler # IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	If your Distributor is not in the list, (1) Type Other in the ID : field.
* Zip: Langua	age: English (US)	Search Partner X The Click Search Gaunt
* How did you learn about Samsung HNVG Training?		Title D Parent OTHER SHRACOTHER Semong MAC (Parent)
	(3) Click OTHER to add to form.	Partner: OTHER 🖉 📷 SAMSUNG

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Click the + icon next to SHVAC to find the Distributor Partner y + Job Title + First Name:	Select	Des D Parent # MDetrobuter Strike() Streamsgartaki, played
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P Lands raing lates	
Table Datile	Title: RLC06 - RLC Advanced Service Introduction 4/17 RLC06 - Roanoke, TX
training Details	Session Details:
BLOS - BLC Introduction and Installation	4/17 RLC06 - Roanoke, TX
Image: Second processing HWC - 3 hours Image: Second processing HWC - 3 hours	Date: 4/17/2019 9:30 AM
Request Calendar View Print View Event	Time: 9.30 AM - 5.30 PM EST
The come could be an experience of Second and Second and Second and an experience of the could count of the second count of th	Location: Samsung HVAC Roanoke, TX
recensely to initial single zone and multi-zone systems.	Address: 776 Hennietta Creek Road, Suite 100, Roanoke, TX 76262
	Room:
Details Ratings & Reviews	instructor(s): wichael Weitzberger (Himary Instructor)
Registration status screen displays	If the training address does not appear above, please use the below address:
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	Please ensure that you download or print the Training Material prior to the class. Training documents can be found <u>http:</u> , sorted by class nume.
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Softw	are Update	
EEPROM update software is available		RS485
for download using the SNET Pro 2	Feature	Multiple units update at once
service tool	Accessibility	Easy, Connect F1/F2 to any IDUs or ODU
Do not stop the SNET Pro 2 software	Speed	Approx. 10 min
update process once started	Power/Comm.	Power supplied, Normal communication
If the software undate process fails	Application	SNET Pro 2 (DVM S)
follow the update retry procedure		











Reference & G	eneral Information	
	Writing The EEPROM - VIDEO	
Connect	S-NET pro 2 278.84	
Add-On	Image: Construction Image: Construction	
Click EEPROM Write		
Select target device		
Open Option File		
Select file(*.*.src)		
Write Option		
	Version 1,7,2 Unit - Temp,: 'c Power': kW Pressure : kg//cm ³ 2016-09-07 St \$3:08 COM 5 ⊕ ∎	





	K1 Button Function	
K1 (Number of press)	Key operation	Display on segment
1 time	Refrigerant charging in Heating mode	K, 1, BLANK, BLANK
2 times	Trial operation in Heating mode	K, 2, BLANK, BLANK
3 times	Pump out in Heating mode (Outdoor unit address 1)	K, 3, BLANK, 1
4 times	Pump out in Heating mode (Outdoor unit address 2)	K, 3, BLANK, 2
5 times	Pump out in Heating mode (Outdoor unit address 3)	K, 3, BLANK, 3
6 times	Pump out in Heating mode (Outdoor unit address 4)	K, 3, BLANK, 4
7 times	Evacuation (Outdoor unit address 1)	K, 4, BLANK, 1
8 times	Evacuation (Outdoor unit address 2)	K, 4, BLANK, 2
9 times	Evacuation (Outdoor unit address 3)	K, 4, BLANK, 3
10 times	Evacuation (Outdoor unit address 4)	K, 4, BLANK, 4
11 times	Evacuation (All outdoor units)	K, 4, BLANK, A
12 times	End Key operation	-
Press and hold 1 time	Auto Trial Operation	K, K, BLANK, BLANK

	Reference	&	General	Inform	ati
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K2	Button	Function	

K2 (Number of press)	Key operation	Display on segment
1 time	Refrigerant charging in Cooling mode	K, 5, BLANK, BLANK
2 times	Trial operation in Cooling mode	K, 6, BLANK, BLANK
3 times	Pump down all units in Cooling mode	K, 7, BLANK, BLANK
4 times	H/R: Checking the pipe connection H/P: Automatic setting of operation mode (Cooling/Heating) for trail operation	K, 8, BLANK, BLANK
5 times	Checking the amount of refrigerant	"K""9" X X (Display of last two digits may differ depending on the progress)
6 times	Discharge mode of DC link voltage	K, A, BLANK, BLANK
7 times	Forced defrost operation	K, B, BLANK, BLANK
8 times	Forced oil collection	K, C, BLANK, BLANK
9 times	Inverter compressor 1 check	K, D, BLANK, BLANK
10 times	Inverter compressor 2 check	K, E, BLANK, BLANK
11 times	Fan 1 check	K, F, BLANK, BLANK
12 times	Fan 2 check	K, G, BLANK, BLANK
13 times	End Key operation	-

eference & General Information						
K4 Button Function						
K4 (Number of	KEY operation		Display on segment			
press)	Orations unit model	SEG 1	SEG2, 3, 4			
1 time	Outdoor unit model	2				
2 times	Order frequency (Compressor 1)	2	120 Hz → 1, 2, 0			
3 times	Order frequency (Compressor 2)	3	120 Hz → 1, 2, 0			
4 times	High pressure (MPa)	4	1.52 MPa → 1, 5, 2			
5 times	Low pressure (MPa)	5	0.43 MPa → 0, 4, 3			
6 times	Discharge temperature (Compressor 1)	6	87 °C → 0, 8, 7			
7 times	Discharge temperature (Compressor 2)	7	87 °C → 0, 8, 7			
8 times	IPM temperature (Compressor 1)	8	87 °C → 0, 8, 7			
9 times	IPM temperature (Compressor 2)	9	87 °C → 0, 8, 7			
10 times	CT sensor value (Compressor 1)	A	2 A → 0, 2, 0			
11 times	CT sensor value (Compressor 2)	В	2 A → 0, 2, 0			
12 times	Suction temperature	с	-42 °C → -, 4, 2			
13 times	COND OUT temperautre	D	-42 °C → -, 4, 2			
14 times	Temperature of liquid pipe	E	-42 °C → -, 4, 2			
15 times	TOP temperature (Compressor 1)	F	-42°C → - 4.2			

Reference & General Information											
K4 Button Function											
	K4 (Number of press) KEY operation Display on segment SEG 1 SEG2, 3, 4										
	16 times	TOP temperature (Compressor 2)	G	-42 °C → -, 4, 2							
	17 times	Outdoor temperature	н	-42 °C → -, 4, 2							
	18 times	EVI inlet temperature	1	-42 °C → -, 4, 2							
l	19 times	EVI outlet temperature	J	-42 °C → -, 4, 2							
l	20 times	Main EEV1 step	К	2000 steps → 2, 0, 0							
I	21 times	Main EEV2 step	L	2000 steps → 2, 0, 0							
l	22 times	EVI EEV step	м	300 steps → 3, 0, 0							
l	23 times	HR EEV step	N	300 steps → 3, 0, 0							
l	24 times	Fan step (SSR or BLDC)	0	13 steps → 0, 1, 3							
l	25 times	Current frequency (Compressor 1)	Р	120 Hz → 1,2,0							
l	26 times	Current frequency (Compressor 2)	Q	120 Hz → 1,2,0							
l	27 times	Suction 2 temperature (H/R)	R	-42 °C → -, 4, 2							
	28 times	Master indoor unit address	s	Master indoor unit not selected \rightarrow BLANK, N, D If indoor unit No.1 is selected as the master unit \rightarrow 0, 0, 1							
					32						

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Troubleshooting & Service Modes

Electric Discharge Mode

- WARNING: It is extremely hazardous to touch an inverter PCB, fan PCB due to high voltage electrical shock
- Execute "Electric Discharge Mode" or wait 15 minutes after main power is switched off to the unit



		Electric Dischar	ge Mode	
	K2 (Number of press)	KEY operation	Display on segment	
	1 time	Refrigerant charging in Cooling mode	"K""5""BLANK""BLANK"	
	2 times	Trial operation in Cooling mode	"K""6""BLANK""BLANK"	
	3 times	Pump down all units in Cooling mode	"K""7""BLANK""BLANK"	
	4 times	H/R: Checking the pipe connection H/P: Automatic setting of operation mode (Cooling/ Heating) for trail operation	"K""8""BLANK""BLANK"	
	5 times	Checking the amount of refrigerant	"K""9" X X (Display of last two digits may differ depending on the progress)	
	6 times	Discharge mode of DC link voltage	"K""A""BLANK""BLANK"	
,	7 times	Forced defrost operation	"K""B""BLANK""BLANK"	
	8 times	Forced oil collection	"K""C""BLANK""BLANK"	
	9 times	Inverter compressor 1 check	"K""D""BLANK""BLANK"	
Scaution S	 During "Ele It is extrem PCB's bein Before repa at least 15 Depending E464 & E30 Discharge 	ctric Discharge Mode" (ODU), the voltage of ely dangerous to come in contact with the Inv g charged with high DC voltage airing or replacing PCB's always switch off the mins, for the PCB to safely discharge or use on the error, "Electric Discharge Mode" may 34 errors can indicate damage to the PCB as Mode" is not to be used to discharge the DC -	Inv 1 & Inv 2 will be displayed alternately erter PCB's and Fan PCB due to the al line voltage power to the ODU and wait "Electric Discharge Mode" when possible not operate properly. a result of excessive heat so "Electric voltage	







Troubleshooting & Service Modes								
Pump Down Operation								
F 7 CO-0 K2 button Previous Generation	Image: Ward of the second s							
How to Initiate	K2 Tact Switch 3 times							
Compressor	Address No.1 Outdoor Unit - 60Hz (Other Outdoor Unit COMP OFF)							
IndoorUnit	Whole Operation (The set temperature=3°C)							
4Way Valve	OFF (Cooling Mode)							
Outdoor Fan	Maximum air flow							
Main EEV	Operation side : 2000 Step , Stop side : 2000 step							
Maximum Operation Time	30 minutes							
Etc.	Does not conduct the operation of the special operation, and protection control. Pressure and temperature is outside normal limits : Operation is shut down after gas pipe manually closed.							
		39						







Troubleshooting & Service Modes

Pump Out Operation

System pump out – Recovering the system refrigerant charge into the indoor units to enable ODU repairs

- Observe low pressure during pump out operation by initiating "View Mode" in the ODU display (press the K4 button 6x)
 - If the low pressure drops below 29 psig immediately close the gas side service valve and stop pump out operation (press K1 button 1x or K3 button 1x)
 - If the low pressure drops below 14 psig during pump out operation the system will stop automatically to protect the compressor
 - Caution: Do Not use a torch to disconnect the piping



Troubleshooting & Service Modes								
Pump Out Operation cont.								
-	Outdoor unit Key number Press x	Main 3	Sub1 K1 4	Sub2				
How to Initiate				K1 Tact S	witch 3 times~6 times			
Compressor					60Hz			
IndoorUnit			Who	le Operatio	n (The set temperature=40°C)			
4Way Valve				ON	I (Heating Mode)			
Outdoor Fan				М	aximum air flow			
Main EEV			Op	eration side	: 700 Step (Stop side : 0 step)			
Maximum Operation Time					10 minutes			
Protection Control	Conduct the d * Low	Conduct the discharge temperature, high pressure control. (Low pressure protection control is not carried out)						
Etc.	Etc. Entry after safety start. (Only the corresponding Outdoor Unit operation.) To pump out more than 2: Except communication between Outdoor Unit of relevant set after working for one, remainder set makes Pump Out add.							
					44			



Troubleshooting & Service Mode

Vacuum Mode

- Procedure for initiating vacuum setting after ODU repair
- Due to multiple EEV's and solenoid valves, this function is required to insure proper system evacuation

K1 button	Display on segment	Function				
7 times	├, 4, blank, 1	Vacuuming (Outdoor unit address 1)				
8 times	├, 4, blank, 2	Vacuuming (Outdoor unit address 2)				
9 times	-, 4, blank, 3	Vacuuming (Outdoor unit address 3)				
10 times	-, 4, blank, 4	Vacuuming (Outdoor unit address 4)				
11 times	├, 4, blank, A	Vacuuming (All outdoor units)				
How to Initiate	K1 Tact Switch 7 times~11 times					
Compressor	OFF OFF				OFF	
Indoor Unit/Outdoor Fan						
4Way Valve		OFF				
Valves		Open all valves maximum				
Etc.	If not turn off the v	acuum mode, the start of normal operation is prohibited.				





		Error Code	Disp	olay				
	 Meanings of First Al 	phabetical Character / Number	of Error Code	2		7		
	Displayed alphabet		Explanation					
How integrated error	E	When displaying Error 101~70	When displaying Error 101~700					
codes are displayed	P	When displaying Error 701~80	0					
	~	When E206 occurs		Displays address of subordinate wi C001 : HUB, C002: FAN, C003: INV1,	thin the set C004: INV2			
	Ĺ	When MCU error occurs	or occurs Displays address of MCU Ex) C100: MCU address 0, C101: MCU address 1, C102: MCU address 2		U address 1, C102: MCU address 2]		
	Ц	U When displaying outdoor unit address Ex) U200: Outdoor unit 1, U201: Outdoor unit 2, U202: Outdoor unit 3, U203: Indoor			203: Indoor unit 4			
	Я	When displaying indoor unit address Ex) A000: Indoor unit adress 0, A001: Indoor unit address 1, A002: Indoor unit address 2						
	 Order of Error Displa 	у						
		Classification		Error display method	Display Example]		
	Display met	hod for error that occurred in indoor unit	Error No Erro	umber → Indoor unit address → or Number, repeat display	E471 → A002 → E471 → A002			
	Display method fo and othe	r error that occurred in outdoor unit er methods of error display	Error Nu Erro	mber → Outdoor unit address → or Number, repeat display	E471 → U200 → E471 → U200 E206 → C001 → E206 → C002			
						49		



Troubleshooting Error Codes										
Communication Errors										
E201 – Communication error between IDU & ODU during tracking										
	Outdoor unit display E201									
		Duct, Cassette (1/2Way),Console, Celing Cassette (4/Mini4Way) Wall-mounted (NecForte)								
	Indoorunit display	Operation Defrost Timer Fan Filter/MPI Operation Defrost Timer Filter Operation Timer Turbo 24°C 27°C								
	. ,	[x x 0 0 x x 0 0 x x								
	Judgment Method	Communication error between indoor and outdoor units								
	Cause of problem	Refer to the judgment method below.								
	Cause Solution									
	Indoor quantity ≠ IDU	quantity setting in Outdoor unit Adjust the setting								
	F1,F2 wire disconnection / Any IDU power down Check the F1,F2 wire / Power on Communication IC (Integrated circuit) faulty Check the IC									
	Duplicated address setting(E108 will be shown as well) Change the indoor unit's address									



Troubleshooting Error Codes									
Communication Errors									
E201 Communication error between IDU & ODU cont.									
	Action	Result							
	Check wiring to F1,F2 terminal block	ОК							
	Comm. IC check	ОК							
	Check ODU PCB setting	ОК							
	Check Other error occurrence	ОК							
	Wiring broken check	NG – middle of the F1 wire was broken							
Wiring broken check NG – middle of the F1 wire was broken Solution: Replace the damaged communication wire: 16/2 stranded with shield No splices between terminal connections F1 F2 Communicatic houre F1 F2 Communicatic houre Broken									
			53						





Troubles	hooting	g Error Codes							
Communication Errors E206 – Internal communication error of the ODU Control Box									
	Outdoor unit display	E206							
	Indoorunit display	Duct, Cassette (1/2 Way), Console, Celling Cassette (4/Mini4 Way) Wall-mounted (NeoForte) Operation Defrost Timer Fan Filter/MPI Operation Defrost Timer Yata × × •							
	Judgment Method	PCB does not respond to the invoked Main PCB							
	Cause of problem	C-Box internal Inverter PCB, Fan PCB, Hub PCB defective							
	Possibility	 Poor connection of communication wiring and connector Defect of related electric component 							
	Reference • E206-C001: HUE • E206-C003: Inv • E206-C005: Wat	3 PCB communication error / E206-C002: Fan PCB communication error 1 PCB communication error / E206-C004: Inv 2 PCB communication error ter HUB PCB communication error							
		ain PCB							

Troubleshooting Error Codes							
Communication Errors E108 Duplication of indoor unit address							
	Outdoor unit display	E 108-A00X(X:A	ddress of duplicate indoor unit)				
	Indoor unit display						
	Judgment Method	Refer to the judgment met	thod below.				
	Cause of problem · Indoor unit and MCU address duplication.						
	Ca	use	Check point				
	Display : E108-A001-E108-A001 → Duplicated address of indoor unit → A001 IDU tried to use address already exist.		 Find IDU address #01 and then set the address again (The indoor unit has an error LED is blinking). Use S-net pro to fine the IDU and set the address again. 				
	Duplicated address EEV kit	of indoor unit in	Check the EEV Kit setting				
	Display : E108-C10 → Duplicated addre	1-E108-C101 ss of MCU	Check MCU address rotary switch				
				57			



Troubleshooting Error Codes Communication Errors E604 Communication error between wired RC and IDU PIM Display E604 Communication error between wired remote controller & Indoor unit Contents Error result Remote controller stop - When tracking between wired remote controller and indoor unit/ventilator (ERV) is not complete for more than 3minutes(ex: System communication error like E201, E108...) Cause - IDU address has been changed after wired remote controller tracking completion Treatment 1) Power reset of Wired Remote controller (Manual reset ; re connect the power wire) SMTWTFS 86.04

Troubleshooting Error Codes										
Communication Errors										
E613 Communi	E613 Communication error between DMS and PIM/SIM – 15 mins.									
	PIM Display	E613								
	Contents	Error which occurs when there is no communication between DMS and PIM/SIM for 15 minutes								
	Error result	PIM stop								
	Cause	- System communication error like E201, E108 - Wired disconnection								
	Treatment	- System communication error fix - Check the wire								
			60							

Troubleshooting Error Codes									
Communication Errors									
E108 – E604 – E613 Troubleshooting									
	Error code	Description	Cause	Solution					
	E613	Comm. error between DMS and PIM/SIM	Comm. was not finished Because of E108	Fix E108					
	E108	Address duplication of IDU/MCU/EEV kit	EEV KIT address setting Failure (human error)	Fix IDU address					
	E604	Tracking error between remote controller and the IDU	Tracking fail because of E108	Power reset on Wired remote controller					

















E461/361 & E464/364 Troubleshooting

Diagnosis 4: Check compressor malfunction with VOM tester

- Power off to the ODU and wait at least 15 mins. For possible IPM failure
- Electric discharge mode may not function
 Remove compressor wires from terminal block
- Remove compressor wires from terminal block and set the VOM for testing

Resistance test	Normal range
Resistance value of (U↔V,V↔W,W↔U) on compressor	less than 2Ω
Resistance value between the body of compressor and chassis	MΩ



Example

No	Comp Model	C-R or U-V (Ω)			C-S or U-W (Ω)			V-W (Ω)		
		Spec.	Min	Max	Spec.	Min	Max	Spec.	Min	Max
1	DS-GB052FA++	0.21	0.20	0.22	0.21	0.20	0.22	0.21	0.20	0.22
2	DS-GB052FB++	0.13	0.12	0.13	0.13	0.12	0.13	0.13	0.12	0.13
3	DS-GB066FA++	0.14	0.13	0.15	0.14	0.13	0.15	0.14	0.13	0.15
4	DS-GB070FA++	0.11	0.11	0.12	0.11	0.11	0.12	0.11	0.11	0.12









EEV Errors

EEV Leak

- Find the cause of the EEV leak and repair it
- How to check the EEV leak
 - Turn on 1 indoor unit in the Cool mode and the others in Fan mode
 - Wait at least 10 minutes and review the operation stats
 - Note the evaporator inlet and outlet temperatures of the indoor units in Fan mode

Addr	Btu/hr	Power	Mode	Fan	Set Temp	Room Temp	Evap In Temp	Evap Out Temp	EEV Step
10	12 MBtu		Cool	High	70°F _	_70°F	45°F	63°F	116
11	0		Fan	Auto	72°F I	68°F	43°F	57°F	0
12	0		Fan	Auto	72°F	68°F	43°F	63°F	0
13	0	\bigcirc	Fan	Auto	72°F	66°F	41°F	55°F	0
14	0		Fan	Auto	72°F	68°F	59°F	59°F	0
									-
							EEV leak		



Troubleshoe	oting	Error (Codes				
			EEV Errors				
	Error code		E152				
	Contents	Error due to clos	ed EEV indoor unit (2nd detec	ction)		Ē	Edge of
	Error result	No cooling, No h	eating				
	Possibility	 EEV coil or w EEV coil / boo Evaporator in 	ire or connector disconnectior dy is broken /out sensor is pulled out totally	n y at the same time		Ĩ	HE -
	Treatment	 Connect EEV Check EEV c Replace EEV Check both E 	r coil again oil resistance and replace body ivaporator sensors				A,
* 1 st detection of EEV closing : E-70 Main EEV coil resistance value star	D3 error \rightarrow The in indard (measured to	door unit stop → F emperature 68°F	Remote Controller On : The i	indoor unit restarts.]		
Main EEV Coil	Operation voltage	Interphaseresistance		Detection Fa	ctor	Condition	
white —	(100)	Do Wh		T Cond_out – T Air	_out > 5°F	ОК	
(COM) Red		Re-Or		T room air_in – T Ev	ap_in > 7°F	NO	
Oronge	12±1.2	Br-Ye Br-Bi		T room air_in – T Ev	ap_out > 7°	NO	
Yellow Brown Blue (COM)		150±15		Comp. On & Indo	or unit On	ОК	
							77

Troubleshooting Error Codes	
How To Replace The EE	V Head
1. Check wiring condition of coil connector 2. Check wiring condition of coil	3. Check coil resistance each terminal
	RED - WHITE 150±15Ω RED - ORANGE " BROWN-YELLOW " BRWON-BLU " COM : RED, BROWN "
	78







Troubles	shoo	ting Erro	or Codes			
			IPM Erro	ors		
Poor cooling	due to IP	M overheating				
■ P ■ C ■ H	roblem: Pe ondition: (listory 1. Trial op 2. Inverter 3. High IPI	Dor cooling Compressor frequer eration - PCB – EMI PCB – Reacto M temp – low compresso	ncy doesn't increase r replaced r frequency – reduced coc	— High IPM temp — Iling capacity	High suction pressu	e
	Test	5/27	case 1 upper PCB change	5/28 case 2 lower PCB change	case 3 exchange PCB position each other	
	Upper PCB (inv 2)	PCB_A freq. 55hz IPM 192°F	PCB C freq. 54hz IPM 180°F	PCB C freq. 55hz IPM 174°F	PCB D freq. 55hz IPM 178°F	
	Lower PCB (inv 1)	PCB B freq. 52hz IPM 187°F	PCB B freq.51hz IPM 198°F	PCB D freq. 52hz IPM 196°F	PCB C freq. 52hz IPM 192°F	
						82



Troublesh	nootin	g Err	or C	odes					
			1	PM Erro	rs				
Poor cooling due	e to IPM ove	erheating							
 Solution: Re 	eplace the fa	ulty bolt a	nd proper	ly reattach	the IPM to t	the heat s	ink using the	ermal grease	
	Date	5/28	5/29]	Date	6/5	6/5	<u>,</u>	
	OD Temp	100°	100°		OD Temp	107°	105°	1	
	High pressure	87°	87°		High pressure	94°	97°		
	Low pressure	<u>52°</u>	53°		Low pressure	51°	<u>50°</u>	I	
	Comp1	126°	126°		Comp1	142°	180°	I	
	Comp2	131°	131°]	Comp2	147°	1 . 185°	I	
	Current1	12.3	15.3		Current1	14.9	20.2	I	
	Current2	10.3	14.2		Current2	14.2	19.3	I	
	IPM1	187°	192°		IPM1	190°	185°	I	
	IPM2	192°	178°		IPM2	194°	<u>187°</u>	1	
		Basic	Reattach #1			Reattach #2	Solved	1	
	© IPM	Temp Protectio	n		© HP Pro	otection	~'		
	- Hz	Hold : 194°F			- Hz Hol	d : 512 psi.			
	- Hz [00wn : 199°F			- Hz Dow	n : 526 psi.			
	_	-	_	_	_	_			







or Codes			
IPM Erro	ors		
Address Serial Number Operation Mode Operation Mode Error Code Capacity Target Frequency1 Order Frequency1 Current Frequency2 Order Frequency2 Order Frequency2 Current Frequency2 High Pressure Saturated T_P4 Low Pressure Saturated T_Ps Discharge1	10,00,00 - CompDown Cool 455 16HP 0 0 0 0 0 0 0 0 0 0 0 0 0	Address TestOperation(UP) Comp Top1 Comp Top2 Outdoor Temp, Compressor Current IPM1 Temp IPM2 Temp CondOut Temp, Liquid Tube Temp, Suction1 Temp, Suction2 Temp, Main EEV EVI EEV EVI IN EVI OUT	10,00,00 Completed 50,1 °C 89,8 °C 117° °C 0 53°C 75°C 131° 53,7 °C 12,2 °C 12,6 °C 0 0 17,5 °C 50,6 °C
	Address A Serial Number Operation Mode Operation Mode Operation Status Error Code Capacity Target Frequency1 Order Frequency1 Order Frequency2 Order Frequency2 Order Frequency2 Order Frequency2 Uurrent Frequency2 Uurrent Frequency2 Uurrent Frequency2 High Pressure Saturated T_Pd Low Pressure Saturated T_Ps	Address 10,00,00 Serial Number - Operation Mode CompDown Operation Status Cool Error Code 455 Capacity 16HP Target Frequency1 0 Order Frequency1 0 Order Frequency2 0 Order Frequency2 0 Order Frequency2 0 Current Frequency2 0 Under Frequency2 0 Low Pressure 11,3 Saturated T_Ps 14C	Address 10,00,00 Address 4 Serial Number - TestOperation(UP) Operation Mode CompDown Comp Top1 Operation Status Cool Comp Top2 Error Code 455 Outdoor Temp, Capacity 16HP Compressor Current Target Frequency1 0 IPM1 Temp Current Frequency2 0 CondOut Temp, Order Frequency2 0 Liquid Tube Temp, Order Frequency2 0 Suction1 Temp, Current Frequency1 133° Main EEV Low Pressure 11,3 EVI EEV Saturated T_Ps 14°C EVI IN

an IPM overheating error	Address 🛆	10,00,00	Address 🛆	10,00,00
3	Serial Number	-	TestOperation(UP)	Completed
xample F455 – Fan overheat error	Operation Mode	AutoInspect	Comp Top1	64,1 °C
Solution: Check the motorized damper	Operation Status	Cool	Comp.Top2	65.8C
and open it manually	Error Code	0	Outdoor Temp,	(72°)
Result: System operating properly	Capacity	16HP	Compressor Current	9,4
	Target Frequency1	64	Compressor Current	9,6
	Order Frequency1	64	IPM1 Temp	52°C
	Current Frequency1	64	IPM2 Temp	51 C
	Target Frequency2	67	CondOut Temp,	(104°)
	Order Frequency2	67	Liquid Tube Temp,	39,2 C
	Current Frequency2	67	Suction1 Temp,	10,4°C
	High Pressure	(82°)	Suction2 Temp,	10,3°C
	Saturated T_Pd	(117°)	Main EEV	2000
	Low Pressure	8,9	EVI EEV	0
	Saturated T_Ps	70	EVLIN	32,6°C
	Discharge1	64,8°C	EVI OUT	34,8°C
	Discharge2	66,1 °C	Outdoor Fan	16





Tro	buble	eshooting Error Codes	
Ther	mistor Sei	Temperature Sensor Errors	
	Case	Condition	
	Case 1	Error : sensor is Open/Short+ \circ - \circ Xopen + \circ - \circ Short \rightarrow Can not sense the temperature+ \circ - \circ Short	
	Case 2	Error : Sensor is detached from the location holder \Rightarrow Sense wrong temperature Ex) actual 81°F \rightarrow sensing 113°F	
	Case 3	No error : Sensor is damaged(normally because of moisture & may read higher temperature) → Sense wrong temperature Ex) actual 81°F → sensing 104°F	
			. 92

Troubl	esh	ootir	ng Error Codes					
			Temperature Sensor Erro	ors – Cas	e 1			
		IDU	121: Indoor temp s/s, 122: Evap in, 123: Evap out	Active Error	ODUs Normal	Error unit Stop	IDUs Normal	
	Error code	ODU	 221: Outdoor temp s/s, 224: water temp s/s of main 0 225: Control box temp s/s of main outdoor unit, 231 251: Discharge(comp1), 257: Discharge(comp2), 27 308: Suction temp sensor, 311: Sub-cooler temp sen 321: EVI in, 322: EVI out, 323: Suction 2 	DDU : Cond Out 76: Top(comp1), 277 sor	7: Top(cor	np2)		
		Others	219: MCU sub-cooler in, 220: MCU sub-cooler out					
		Judgment	Measured resistance is open or less than 100Ω					
	Error	Status	Stop the unit and show the error in advance(others w	rill work as normal)				
		Display	Error unit & Main outdoor unit					
	Rel	ease	When error is corrected – automatic release					
	Cause	of error	Sensor disconnection Sensor wire broken Sensor connector damage PCB faulty,					
								93



Trouble	shoot	ting Error Codes		
	Case 2. Ser	Temperature Sensor	Errors – Case 2 sensor is damaged	
Error	IDU	128: Evap in, 129: Evap out	Active Error ODUs Error unit IDUs Normal Stop Normal	
Error	Judgment Status Display	© E128 : Evap in (Condition : 1&2&3&4&5 for 20mins) 1. Cooling trial operation 2. Cond out – Outdoor temp ≥ 37°F 3. Room temp – Evap in temp < 39°F 4. Room temp – Evap out ≥ 39°F 5. Comp on & All indoor units are thermo on Stop the unit and show the error(others will work and Error unit & Main outdoor unit	© E129 : Evap out (Condition: 1&2&3&4&5 for 20mins) 1. Cooling trial operation 2. Cond out – Outdoor temp ≥ 37°F 3. Room temp – Evap in temp ≥ 39°F 4. Room temp – Evap out < 39°F 5. Comp on & All indoor units are thermo on s normal)	
	Release	Indoor : remote off-on, press K3		
C	ause of error	 Sensor detached Sensor damaged 	3. PCB faulty 4. Refrigerant shortage	
Rema	rk X Sensing	condition is very limited as there is high possibility of is damaged, protection control will secure the reliabil	misjudgment ity of the system	

		Temperature Sensor Fr	rors – Case 2
Case	2. Sensor i	s detached from the location or sens	sor is damaged
Error code	ODU	241: Condenser out	Active Error UDUs Error Unit IDUs Stop Stop Stop
Error	Judgment	 * Condition : 1&2&3&4&5 for 20mins 1. Heating operation 2. High pressure average > 356 psi & Low pressure 3. Evap out - Room temp ≥ 37°F & Evap in - Room 4. Cond, out - Outdoor temp ≤ 32°F 5. Compressor on Stop & auto restart max 6 times then stop & restart 	ure average < 121 psi om temp ≥ 36°F art restriction
	Display	Main outdoor unit, after stop : whole system	
Cause	e of error	1. Sensor detached 2. Sensor damaged 3. PCB faulty	

✓ Case 2. Sensor is detached from the location or sensor is damaged Error code ODU 262: Discharge(comp1), 263: Discharge(comp2) 266: Top(comp1), 267: Top(comp2) Active Error ODUs Error unit IDUs Stop Stop Judgment * Condition : 1&2&3 for 30mins 1. Operating compressor frequency is 60Hz or higher 2. Discharge or top temp < high pressure saturated temp 3. Suction temperature > Low pressure saturated temp 3. Suction temperature > Low pressure saturated temp 3. Suction temperature > Low pressure saturation temperature +18°F Status Stop & auto restart max 6 times then stop & restart possible Display Main outdoor unit, after stop : whole system Release Indoor : remote off-on, press K3 Cause of error 1. Sensor detached 2. Sensor damaged 3. PCB faulty	sno	Dotin	g Error Codes
Error code ODU 262: Discharge(comp1), 263: Discharge(comp2) Active Error ODUs Error unit IDUs 266: Top(comp1), 267: Top(comp2) * Condition: 1&2&& for 30mins 1. Operating compressor frequency is 60Hz or higher 2. Discharge or top temp < high pressure saturated temp 3. Suction temperature > Low pressure saturated temp 3. Suction temperature > Low pressure saturation temperature +18°F Status Stop & auto restart max 6 times then stop & restart possible Display Main outdoor unit, after stop : whole system Indoor : remote off-on, press K3 Indoor : remote off-on, press K3 Cause of error 2. Sensor damaged 3. PCB faulty PCB faulty	(Case	2 Sensori	is detached from the location or sensor is damaged
Error code ODU 262: Discharge(comp1), 263: Discharge(comp2) 266: Top(comp1), 267: Top(comp2) Active Error ODUs Error unit IDUs Stop Stop Stop Judgment Judgment * Condition : 1&2&3 for 30mins 1. Operating compressor frequency is 60Hz or higher 2. Discharge or top temp < high pressure saturated temp 3. Suction temperature > Low pressure saturated temp 4. Suction temperature > Low pressure saturated	cuse	2. 5011501	
Frror * Condition : 1&2&3 for 30mins 1. Operating compressor frequency is 60Hz or higher 2. Discharge or top temp < high pressure saturated temp 3. Suction temperature > Low pressure saturated temperature +18°F Status Stop & auto restart max 6 times then stop & restart possible Display Main outdoor unit, after stop : whole system Release Indoor : remote off-on, press K3 Cause of error 1. Sensor detached 3. PCB faulty Integer temperature	Error code	ODU	262: Discharge(comp1), 263: Discharge(comp2) Active Error ODUs Error unit IDUs 266: Top(comp1), 267: Top(comp2) Stop Stop Stop Stop
Status Stop & auto restart max 6 times then stop & restart possible Display Main outdoor unit, after stop : whole system Release Indoor : remote off-on, press K3 Cause of error 1. Sensor detached 2. Sensor damaged 3. PCB faulty	Error	Judgment	 * Condition : 1&2&3 for 30mins 1. Operating compressor frequency is 60Hz or higher 2. Discharge or top temp < high pressure saturated temp 3. Suction temperature > Low pressure saturation temperature +18°F
Display Main outdoor unit, after stop : whole system Release Indoor : remote off-on, press K3 Cause of error 1. Sensor detached 2. Sensor damaged 3. PCB faulty		Status	Stop & auto restart max 6 times then stop & restart possible
Release Indoor : remote off-on, press K3 Cause of error 1. Sensor detached 2. Sensor damaged 3. PCB faulty		Display	Main outdoor unit, after stop : whole system
Cause of error 1. Sensor detached 2. Sensor damaged 3. PCB faulty	Rel	ease	Indoor : remote off-on, press K3
	Cause	of error	1. Sensor detached 2. Sensor damaged 3. PCB faulty

Troubleshooting Error Code Temperature Sensor Errors – Case 2 $\checkmark\,$ Case 2. Sensor is detached from the location or sensor is damaged Error When error occur ODUs Error unit IDUs Stop Stop Stop Stop ODU 269: Suction Temperature Sensor code * Condition : 1&2&3 for 30mins Judgment 1. Heating mode(exclude for main heating mode) Error 2. | suction temp_current - suction temp_start| < 36°F for 30mins Status Stop & auto restart max 6 times then stop & restart restriction Display Main outdoor unit, after stop : whole system Indoor : remote off-on, press K3 Release 1. Sensor detached Cause of error 2. Sensor damaged 3. PCB faulty



3. No	error (s	Temperature Sensor Errors – Case 3
Error	-	No error – Wrong Temperature System ODUs Error unit IDUs Status Normal Normal Normal Normal
	Judgment	System capacity shortage / Condenser freezing up
Error	Status	Sensor reading wrong temperature value
	Display	
R	elease	
Caus	e of error	1. Sensor detached 2. Sensor damaged 3. PCB faulty 4. Refrigerant shortage
R	emark	Use SNET Pro 2 to monitor cycle data

Temperature Sensor Errors – Case 3

✓ Case 3. No error (sensor is damaged)

Sensor	Temperature	Role	System
Fuen in	Read higher	SH control	EEV close → Capacity ↓
Evapin	Read lower	SH control	EEV open \rightarrow Possibility of liquid back \rightarrow DSH protection \rightarrow Capacity \downarrow
Even evit	Read higher	SH control	EEV open \rightarrow Possibility of liquid back \rightarrow DSH protection \rightarrow Capacity \downarrow
Evap out	Read lower	SH control	EEV close → Capacity ↓
Cand out	Read higher	SH control Defrost	Cool : no matter Heat : Insufficient defrost → ice forming → Capacity ↓ → Fan protection
Read lower		SH control Defrost	Cool : no matter Heat : Frequent defrost, longer defrost operation(Max 15mins) → Capacity ↓
Discharge	Read higher	DSH control	DSH protection control(Hz↓& EVI EEV open) →Capacity ↓ & Possibility of liquid back → DSH protection(other s/s) → Capacity ↓
/Тор	Read lower	DSH control	DSH protection control \rightarrow Hz \downarrow \rightarrow Capacity \downarrow & compressor might be overheated \rightarrow DSH protection(other s/s)
Quation	Read higher	SH control Defrost	Cool : No matter Heat : EEV open → Possibility of liquid back → DSH protection → Capacity ↓
Suction	Read lower	SH control Defrost	Cool : No matter Heat : EEV close → Capacity ↓, Frequent defrost

Normally damaged sensor will read higher temperature(lower resistance)





Trouble E407 – Compre	eshootir	to high pressure protection control
	Outdoor unit display	<i>EYD7</i> (AM***FXV***)
		Duct, Cassette (1/2Way),Console, Celing Cassette (4/Mini4Way) Wall-mounted (NeoForte)
	Indoorunit display	Operation Defrost Timer Fan Filter/MPI Operation Defrost Timer Filter Operation Timer Turbo 24°C 27°C
	Judgment Method	Value of the high pressure sensor is detected at 569 psi or higher
	Cause of problem	<cooling operation=""> Outdoor unit fan motor problem (constrained, defective) Motor driver defective or wire is cut Outdoor heat exchanger is contaminated. Service valve locked/Fill refrigerant <heating operation=""> Outdoor unit fan motor problem (constrained, defective) Motor driver defective or wire is cut Service valve locked/Excessive refrigerant </heating></cooling>
	E407 is one of th	e most common errors during trial operation, due to closed service valve(s)

Indoorunit display	Du	ct, Cassette	(1/2Way),0	Console, Ce	eling		Cassette (4	/Mini4 Way	n		Wall-m	ounted (Ne	oForte)]
in addition and additional and additional addit	Operation	Defrost	Timer	Fan	Filter/MPI	Operation	Defrost	Timer	Filter	Operation	Timer	Turbo	24°C	27°C]
	×	×	0	•	0	×	•	0	0	×	×	0	0	•	1
	ו:(ON O	Flash	×: ()FF										
dgment Method	Judgem	ent meth	iod: note	when	the value	e of the l	ow pres	sure se	nsor is 2	26 psi or	less for	cooling	or 11 ps	i for hea	ating
Cause of problem	Refriger Electror Servic Low pre Leakage Error m (Opera	Refrigerant shortage Electronic expansion valve blocked Service valve closed Leakage of compressor defective Leakage of compressor discharge check valve of not-go-end outdoor unit Error may be found when used in temperature range outside the conditions of use (Operating outside temperature at -4°F or less for heating, or 23°F or less for cooling)													

E410 – Compressor stop due to low pressure protection control

Trouble	shootir	ng Error Codes	
E416 – Dischar	ge temp or top	p temp over 248°F	
	Outdoor unit display	ЕЧ 16	
	Indoorunit display	Duct, Cassette (1/2 Way),Console, Celing Cassette (4/Mini4 Way) Wall-mounted (NeoForte) Operation Defrost Timer Fan Filter/MPI Operation Defrost Timer Turbo 24°C 27°C × × ① ① × ① ① × × ① ① × × ① ① × × ① ① × × ① ① × × ① ① × × ③ ① ③ ○ </td <td></td>	
	Judgment Method	· When value of Compressor discharge temperature sensor / Top temperature sensor is checked at 1208 or more	
	Cause of problem	Refrigerant shortage Electronic expansion valve is blocked. Service valve blocked Defective discharge temperature sensor TOP temperature sensor defective Blocked pipe and defective Leakage of compressor discharge check valve	
		106	

E439 – Error due to refrigerant leakage

E443 – Operation prohibited due to low pressure



E440 – Heati E441 – Cooli	esho ng mode ing mode	oting Error Codes restriction due to high air temperature restriction due to low air temperature	
	Outdoor unit display	E 440 (Prevention of heating operation due to high temperature of outdoor) E 4447 (Prevention of cooling operation due to low temperature of outdoor)	
	Indoor Unit Display	Duct, Cassette (1/2 Way),Console, Celling Cassette (4/Min)4 Way) Wall-mounted (NeoForte) Operation Defrost Timer Fan Filter/MPI Operation Defrost Timer Turbo 24°C 27°C × × •<	
	Judgment Method	• • • • • • • • • • • • • • • • •	
	Cause of problem	System protection operation status (Is not breakdown)	
Note: Not a sys	stem malfunc	ction, but mode operation within specified temperature range	
			108

Troubleshooting Error Codes								
E446 – Error due to E346 – Error due to	o operation failed oper	ailure of Fan 1 ailure of Fan 2						
	Outdoor unit display	E445 (FAN PCB(FAN1)) E345 (FAN PCB(FAN2))						
	Judgment Method	Startup, and then if the speed increase is not normally. Detected by H/W or S/W						
	Cause of problem	Compressor connection error Defective Compressor Defective PCB						
Fan motor wire properly con Yes Test → no Yes Replace the fa	e harness Ne inected e checker No ormal an motor	 Check the wire connection Test procedures using VOM Resistance values between fan motor phase U to V / V to W / W to U all < 10 Ω Resistance between the body of the fan motor and chassis: Mega Ω 	s pr					
			109					















Compresso	or C	hange	eout G	uideline	S			
	C	Compone	ent replace	ment and i	inspection			
Compressor oil problems	can be	caused by oth	her components	in the system, all	system compor	ents must be cl	iecke	
M		Comp #1	Main	ODU	Sub 1	Sub 2		
	brol	ken	comp #1 (Failed)	comp #2	comp #1	comp #1		
	If oil is contaminated		Compressor	Replace	Replace	х	Х	
lf o contan		Accumulator			х	Х		
		Oil separator	Replace	Blockage test by nitrogen gas	х	х		
_		Compressor	Replace	Х	Х	Х		
Shor	rtage oil	Accumulator	Replace (Produ	ction ~ 2014.09)	х	Х		
_		Oil separator	Check & Repl	ace as needed	х	Х		
	Rem	arks	Clean up procedures	As required	Check for Blocka	age of oil return uits		
_								

Step Single Compressor ODU Dual Compressor ODU 1 Set failed compressor in Lock Out mode from ODU PCB 2 Proceed with Pump Out mode only 1 time Continual pump out will cause operating compressor failure 3 Close liquid and gas service valves 4 Initiate Vacuum mode from the ODU PCB to open all EEV's and solenoid valves
1 Set failed compressor in Lock Out mode from ODU PCB 2 Proceed with Pump Out mode only 1 time Continual pump out will cause operating compressor failure 3 Close liquid and gas service valves 4 Initiate Vacuum mode from the ODU PCB to open all EEV's and solenoid valves
 Proceed with Pump Out mode only 1 time Continual pump out will cause operating compressor failure Close liquid and gas service valves Initiate Vacuum mode from the ODU PCB to open all EEV's and solenoid valves
 Close liquid and gas service valves Initiate Vacuum mode from the ODU PCB to open all EEV's and solenoid valves
4 Initiate Vacuum mode from the ODU PCB to open all EEV's and solenoid valves
 Reclaim the refrigerant from the ODU 1. After pump out of refrigerant is completed there will remain approx. 3.3 lbs of refrigerant In cold ambient temperatures, there may be a larger amount in the Accumulator 2. Refer to the factory refrigerant charge labeled on the ODU
6 Turn off the power to the ODU
 Remove the failed compressor from the ODU Caution: Use tubing cutter to disconnect piping, or if all refrigerant has been recovered leaving no refrigerant gas, compressor piping can be unbrazed.

Compressor Changeout Guidelines									
Procedures For Removing Failed Compressor									
Ana	alyze	the condition of the compre	ssor oil and install new compress	or					
S	tep	Single Compressor ODU	Dual Compressor ODU						
	1	Weigh the failed compressor and determine the am	ount of oil compared to the weight of the new compressor						
	2	Test and evaluate the condition of the oil in the faile	d compressor						
	3	If the oil in the failed compressor indicates a "3" contant acid test & perform the appropriate clean up measures shortage in the compressor							
	4	If an oil shortage has been determined, additional testing will have to be done at start up	When an oil shortage is determined, check the other compressor's oil separator for blockage						
	5	Install the new compressor including any filter driers	s as required. Verify type and capacity of drier(s)						
	6	Restore line voltage power to the ODU and initiate vacu	um mode to open all EEV's and Solenoid valves						
	7	Perform a nitrogen pressure test, then an evacuation	on when repairs are leak-free						
	8	Charge system with virgin refrigerant to equal the a	mount removed in recovery						
	9	Additional refrigerant can be determined by using the							
	10	Initiate Auto Trial Operation after opening the service							
				119					







Compressor Changeout Guidelin

Testing After Removal Of The Compressor

How to check the Oil Separator for blockage

- Blow through the discharge pipe using nitrogen
- Cut tubing and inspect
 - Good nitrogen gas flows through the suction line
 - Bad no gas flows through suction line due to blocked
 - NOTE: There is a possibility that a solenoid valve or 4-way valve leaks which will allow nitrogen to flow through the suction pipe
 - In this condition, check the temperature of the oil separator return line after the compressor is replaced and the system restarted







Compressor Changeout Guideline

Clean-up Filter/Drier Guidelines

- Was acid present in the refrigerant as determined by technician before recovering the refrigerant from the system
 If yes, cleanup procedures will be required
- Was acid detected in the oil test, performed by the technician
 If yes, cleanup procedures will be required
- Were there any foreign particles found within the oil removed from the compressor(s)
 - If yes, cleanup procedures will be required

- Selection and proper placement of the drier will be determined by the specific application
 - Use system total BTU capacity for selecting drier size (shell & core)
 - Heat pump/Heat Recovery stand alone or manifolded (module) system
 - Seasonal conditions can the system be locked into cooling-only operation for system cleanup?





