

LG Split DOAS Set Up Reference Guide

This guide is provided to assist in the proper field configuration of this product.

Multi V 5™ System Setting

: Multi V 5 system automatically detects the DOAS system without '**Auto Addressing**'

Check the SW version of MV 5 system, which is connected to DOAS system

Note : CH200 will occur if you proceed auto addressing, CH200 can be cleared when user does a 'Factory Reset' of HR PCB in DOAS unit.



- LG Split Rooftop DOAS : ARND30UBE4 requires latest MV 5 SW Version : v.1.47.0 (Check Sum: 4693) – Production date(Mar.'22)
- LG Split Compact DOAS : ARND153DCR4, ARND203DCR4 requires latest MV 5 SW Version : v.1.49.0 (Check Sum: 2291) – Production date(May.'22)

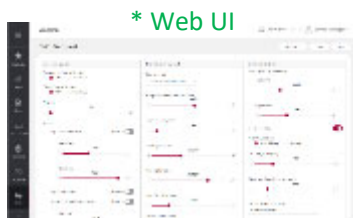
: **Do not use** the following functions of Multi V 5, which could interrupt proper Target Pressure control of DOAS

- FN7 (Adjusting Indoor unit Capacity by airflow)
- FN8 (Adjusting Target Pressure)
- FN14 (Smart Load Control)
- FN30 (High Sensible Operation)
- SE14 (Level Change of Error Code CH200) *DOAS unit includes HR box inside of the unit
- ID5 (Auto Addressing_method selection)
- ID6 (Auto Addressing Start)

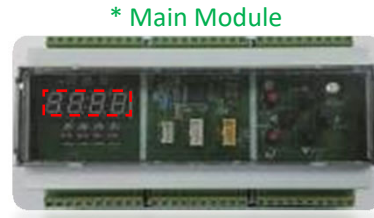
: Based on the DOAS Fan control Setting in ODU Defrost mode at DOAS Controller(Web UI), FN27 will not activate

DOAS System Setting

: DOAS Setting can be done with Keypad and Web UI by connecting Ethernet port to Laptop Web UI configuration is recommended to set and operate the DOAS unit



* Web UI



* Main Module

: The appearance of DOAS Controller is same as AHU Comm.kit. However, since completely different software is loaded, do not try to implement the functions in AHU Comm.kit with DOAS Main module.

→ **Don't change any Dip SW Setting on Main Module**

: All the DOAS Control Logic is embedded in this Main Module, and it transfers the data to CAREL Controller to offer WEB User Interface and easy configuration.

: During the unit's operation, Red dots will cycle on 7-Seg display.
It is normal operation condition.

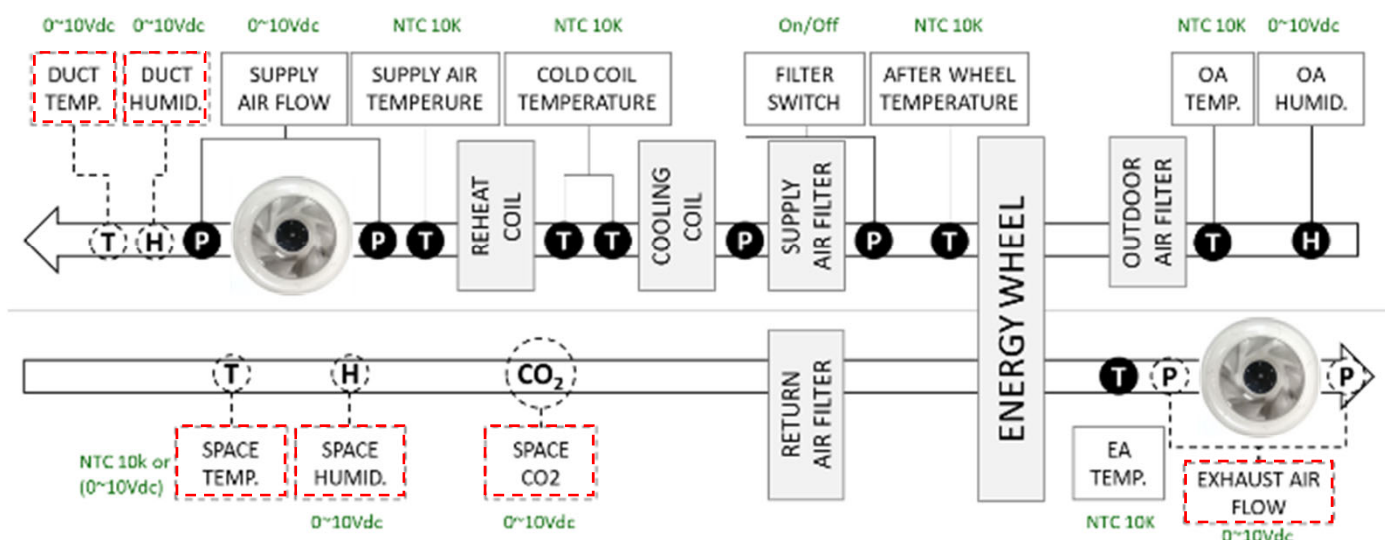
This guide is provided as reference material. Please follow the instructions in the applicable manual(s) to prevent product malfunction, property damage, injury, or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage. For continual development, LG Electronics U.S.A., Inc. reserves the right to change specifications without notice.

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LG Split Rooftop DOAS

T P H : Standard

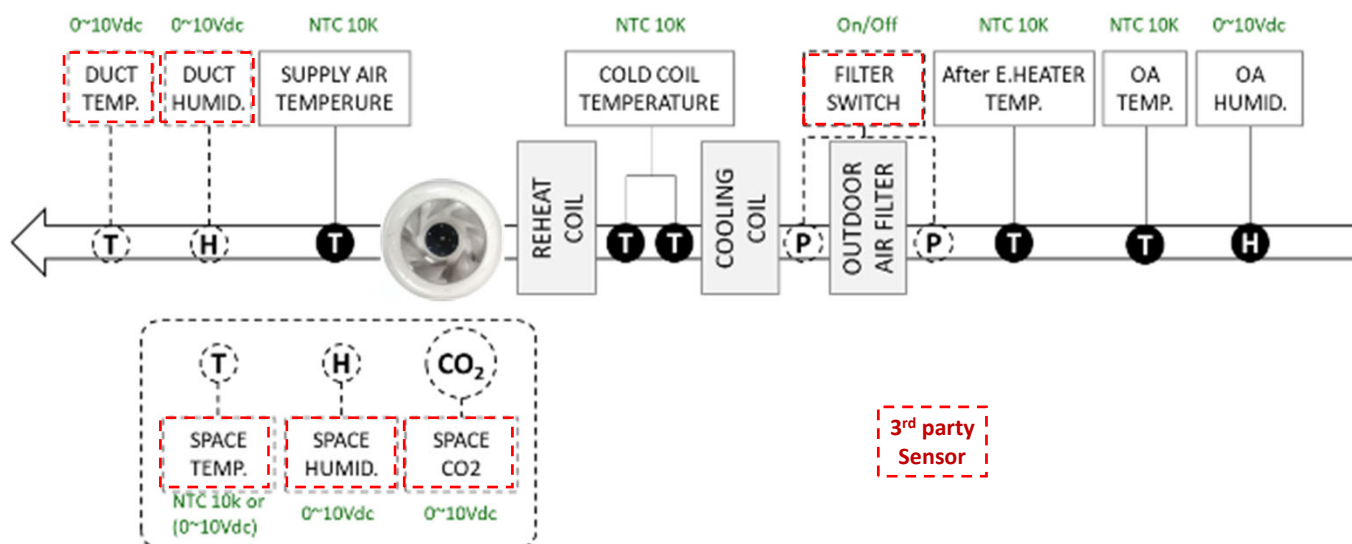
T P H : Field Option



LG Split Compact DOAS

T H : Standard

T P H : Field Option



: Be Sure to Set 'Installed' at the Configuration on 'Web UI' if user needs to use 3rd party sensor. If not, DOAS will not detect 3rd party sensor value (e.g Space Temperature, Humidity, CO², etc.)

Sensor

- Space Temperature

Installed



Installed



: If two different types of sensors are installed, unit will control and monitor the value on WEB UI

- Space Air Temperature sensor Priority : **NTC Type > 0~10V Type**

- Supply Air Temperature Sensor Priority : **0~10V Type > NTC Type**

→ **DOAS will be controlled and monitored(Web UI) with Higher Priority value**

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DOAS Operation

Following installation, DOAS configuration and testing includes the process identified below.

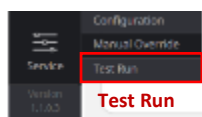
1. Connect the Ethernet line to CAREL Controller and Laptop

2. Check IP Address on CAREL*, copy it to **Chrome Browser** in your Laptop

*Click Menu button on CAREL controller [●] → Ctrl. Variable → Network → Check IP address

3. Login with 'Service manager' account for configuration (PW:7600)

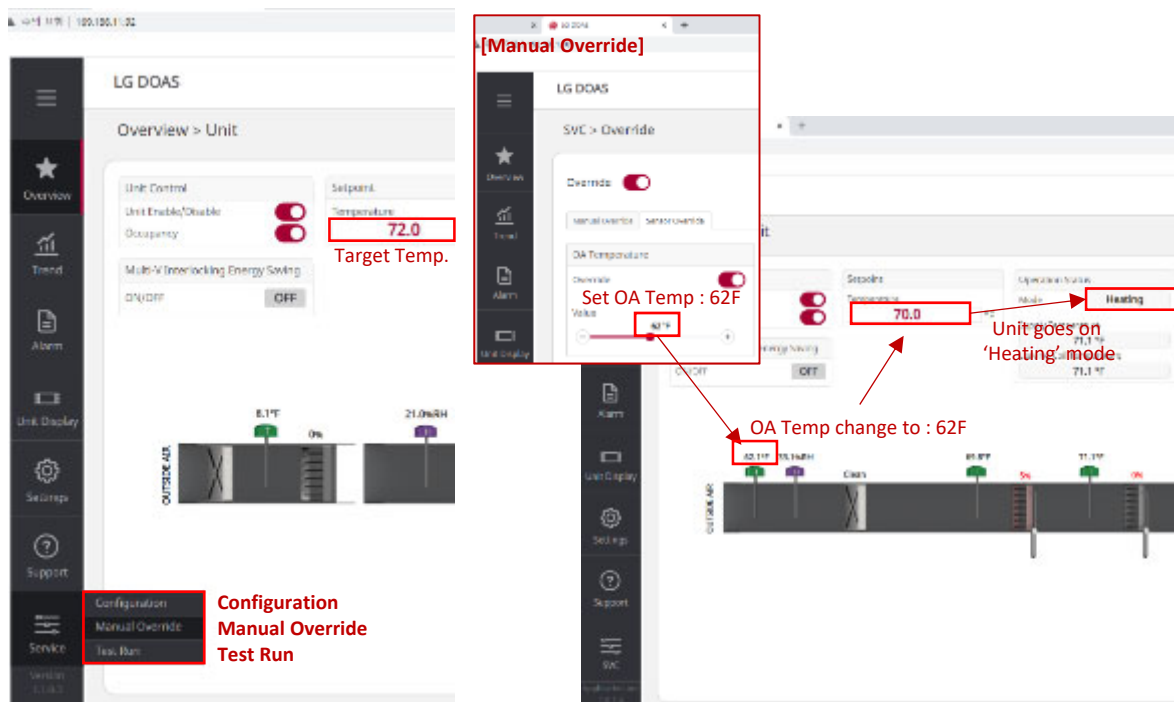
4. Unit Parts Check (Service → Test Run)



- Rooftop DOAS : Dampers(OA/EA/MA) → Fans(SA/EA) → Wheel → Coils(Main/Reheat/Recovery)
 - Compact DOAS : SA Fan → Main Coil#1 → Reheat Coil
- During Test Run unit automatically check the parts fault by its input/output signal(feedback)

5. Check the Simple Unit Operation (Supply Air Control)

- **Cooling** : If 'OA + Heat Cool Deadband¹⁾/2' Temp. is higher then Target Temperature Unit will be in Cooling
 - **Heating** : If 'OA – Heat Cool Deadband¹⁾/2' Temp. is lower then Target Temperature, Unit will be in Heating
- There are two ways to ensure proper performance under certain operating mode(s).
- 1) Change your Target temperature so that unit can change the mode.
 - 2) Use 'Manual Override' to change Outside Air Condition on Web UI.
- OA temperature can be manually overridden in order to enter Cooling or Heating Mode.



Continued.....

1) Service Manager log in → Service → Configuration → See the 'Temperature Control' Section → Set value of 'Heat Cool deadband'

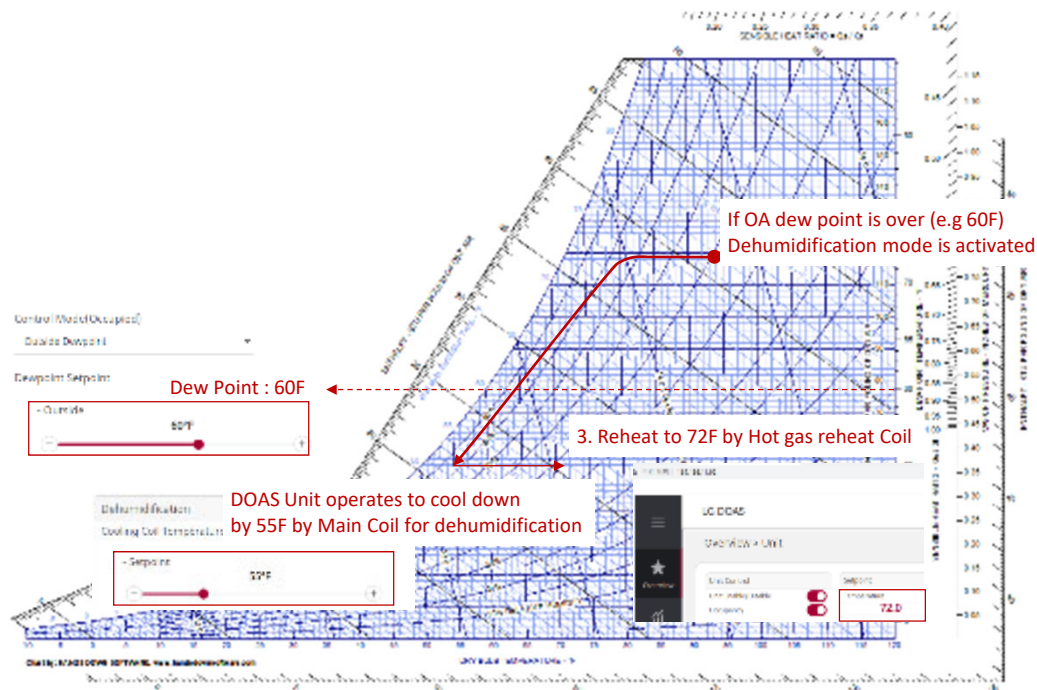
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DOAS Operation

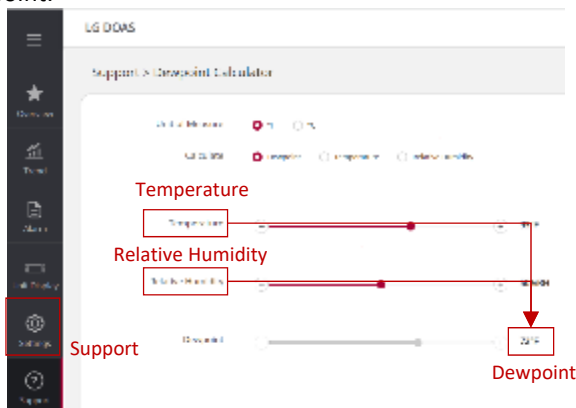
Following installation, DOAS configuration and testing includes the process identified below.

5. Check the Simple Unit Operation (Supply Air Control)

- **Dehumidification** : Default Setting of Activating Dehumidification mode is based on OA Dew Point. Dew point is calculated by OA Temp and OA Humidity. When OA temp is greater than dewpoint set point(e.g 60F), unit enters dehumidification mode. In dehumidification mode, there is a separate target temperature, which is Main Coil Temperature. Unit will cool down to **Cooling Coil temperature** and then reheat to the **Target temperature**, under Cooling/Heating Target Temperature.



- Additionally, check whether the unit enters the Dehumidification mode properly with the Manual Override function. If the OA dew point is set as 60F for activating dehumidification mode, OA dewpoint should be higher in order to enter dehumidification mode. There is no way to set dewpoint directly on manual override, please refer to the 'Dewpoint Calculator' on the Support Menu on Web UI. There, the adjustment of the Temp. and Humidity will set up dewpoint.



- While adjusting the temperature and humidity values, check whether the dew point is higher than the value we set in the Web UI, and if it is, put the temperature and humidity values in Manual override and check that the unit enters dehumidification mode.

NOTE: To Control the Unit base on Space Humidity or enthalpy for dehumidification mode, a 3rd party Sensor must be installed.

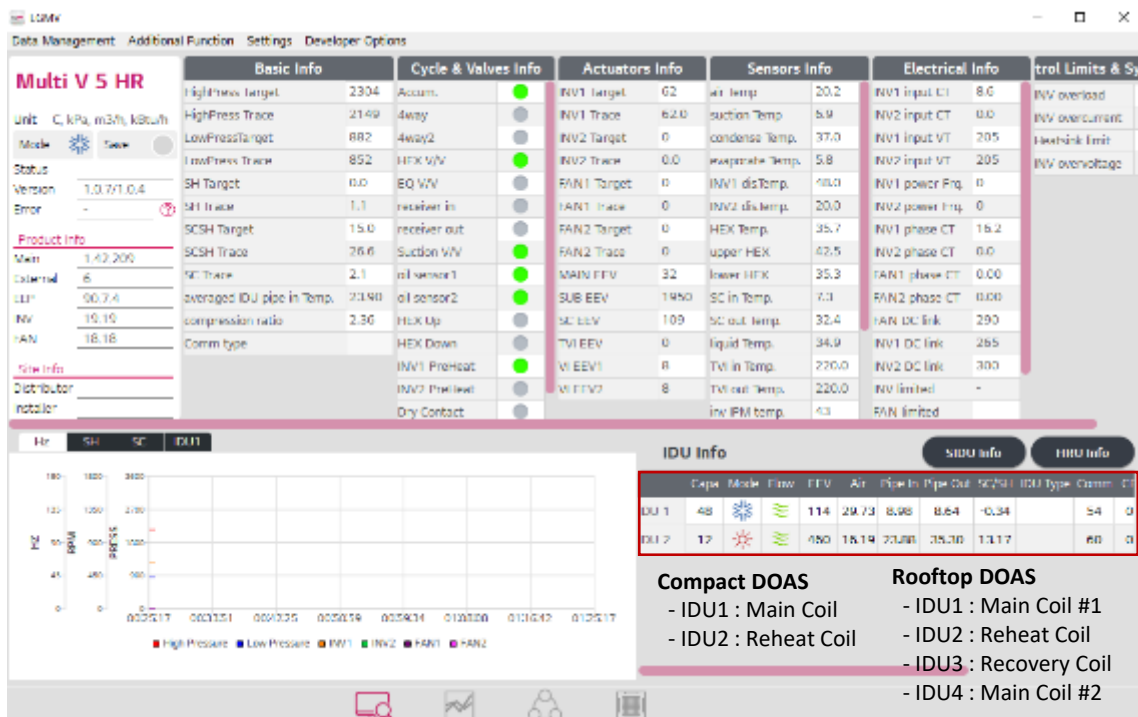
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DOAS Operation

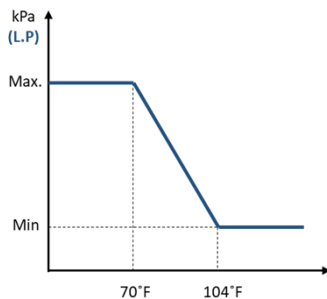
Following installation, DOAS Configuration and testing includes the process identified below.

6. LGMV data

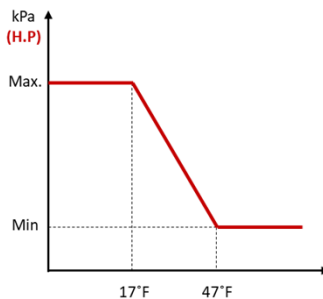
DOAS and ODU status can be monitored by both Web UI and LGMV
DOAS Unit status is shown at IDU info.



[Cooling / Dehumidification]



[Heating]



DOAS Unit sets its first target based on OA Temperature Condition.
The Unit will then periodically change its target Pressure based on the difference between its target Temperature and current Supply Temperature.

Default Control Cycle is 180sec
and every 180sec DOAS unit sends a Target Pressure based on the Target and Current Temperature difference.

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On Boarding Process

The software's version can be found on your Web UI and CAREL controller. The latest version of DOAS SW Firmware is (May '22);

- CAREL :1.1.0.3
- Main Module : 1.4

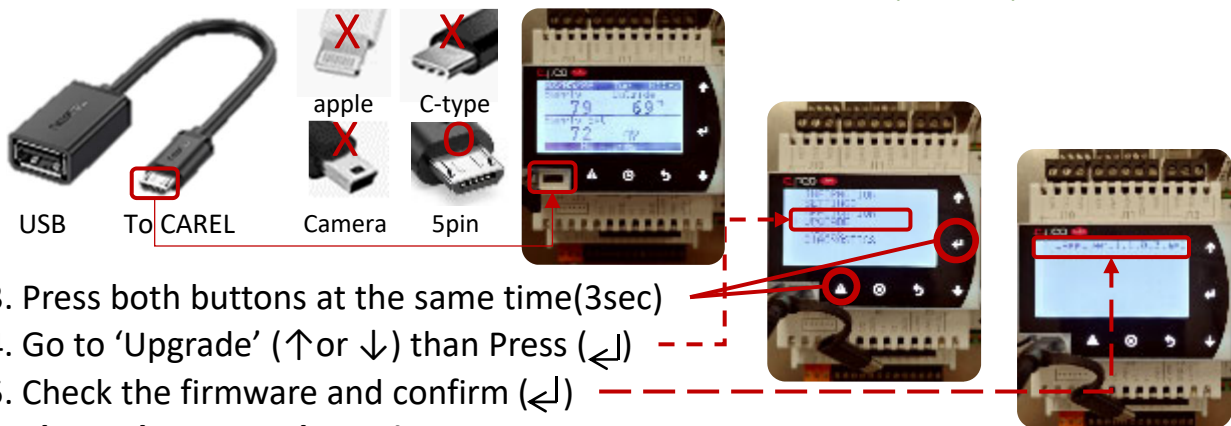
How to upgrade the SW?

- CAREL (via USB)

1. Save the latest CAREL firmware in a folder created with the name '**UPGRADE**' in the USB

* Firmware : LGDOAS_Carel_App_ver_1.1.0.3.ap1


2. Connect CAREL and USB * Micro USB Male to USB Female OTG adapter is required.

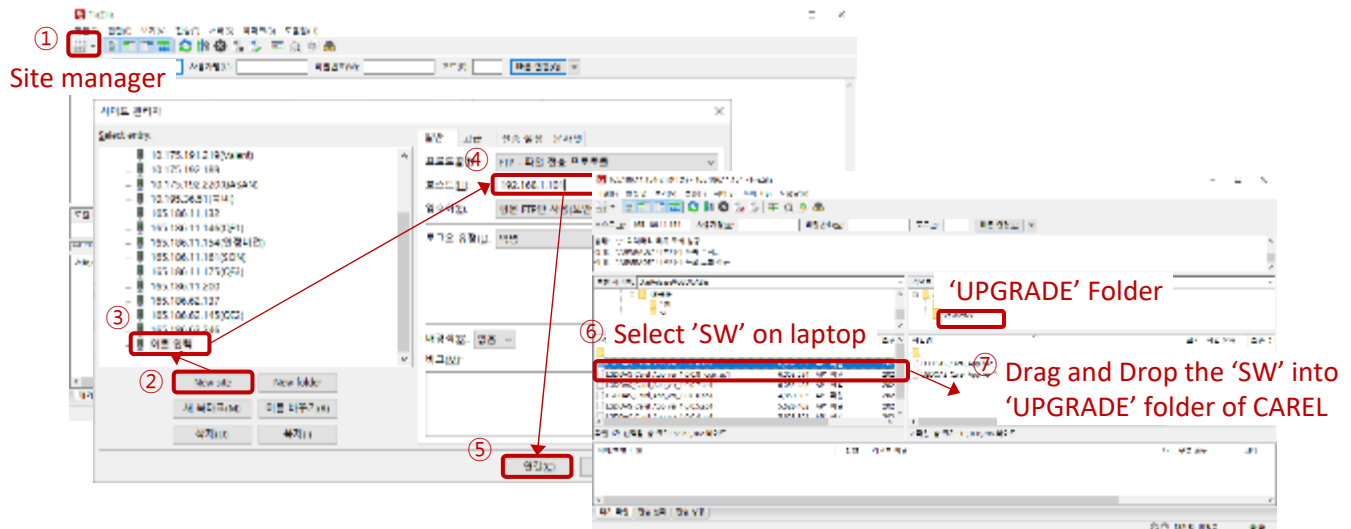


3. Press both buttons at the same time(3sec)
4. Go to 'Upgrade' (↑ or ↓) then Press (↵)
5. Check the firmware and confirm (↵)

Update takes around 10 minutes.

- CAREL (via FTP) *CAREL Controller and PC(Laptop) should be connected with an Ethernet line

1. Download FTP program (<https://filezilla-project.org/>) on your laptop
2. launch '**Filezilla**' → Click 'Site manager' Icon ()
3. Click 'New Site' → Input Host IP address(same as CAREL)→ Click 'Connect'
4. Drag and Drop the firmware from PC to 'UPGRADE' folder in CAREL



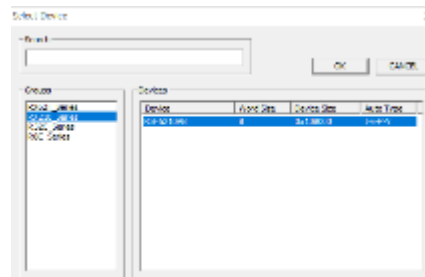
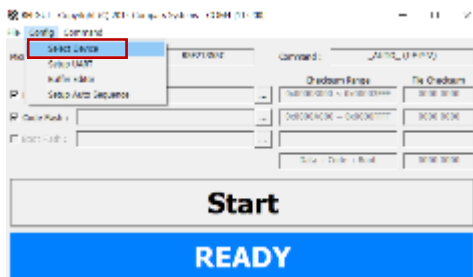
5. Follow the same step from 3 to 5 as upgrade process via USB

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On Boarding Process

-. Main Module (via LGMV)

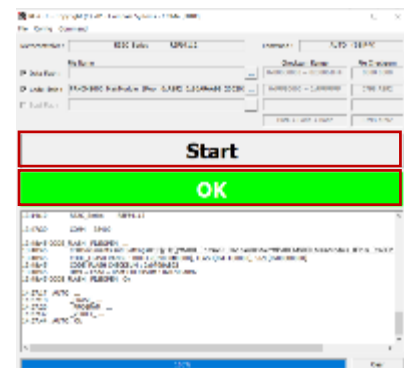
1. Activate the program(RFPGUI) on your PC(Laptop)
2. Go to 'Config' → 'Select Device'
3. Select 'RX210_Series' → Click Device 'R5F5210AB' → Click 'OK'



4. Go to 'Config' → 'Select UART'
5. Select compatible UART Port → Click 'config'



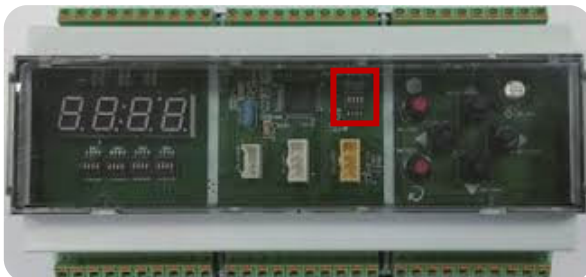
6. Select 38400 at 'Byte/sec' Category → Click 'OK'
- * Recommend communication speed is below 38400
7. Click 'Code Flash' → Select Firmware (e.g [DOAS] Main_SAA39108423_1D9D_0xD0F870DE_MP1_20211113)



8. Click 'Start' → Check 'OK' is appeared after upgrade

-. Hardware Setting

1. Dip SW #1 → On
2. Connect LGMV and CN_UART



3. After Finishing Onboarding, disconnect LGMV and set back DIP SW #1 → Off

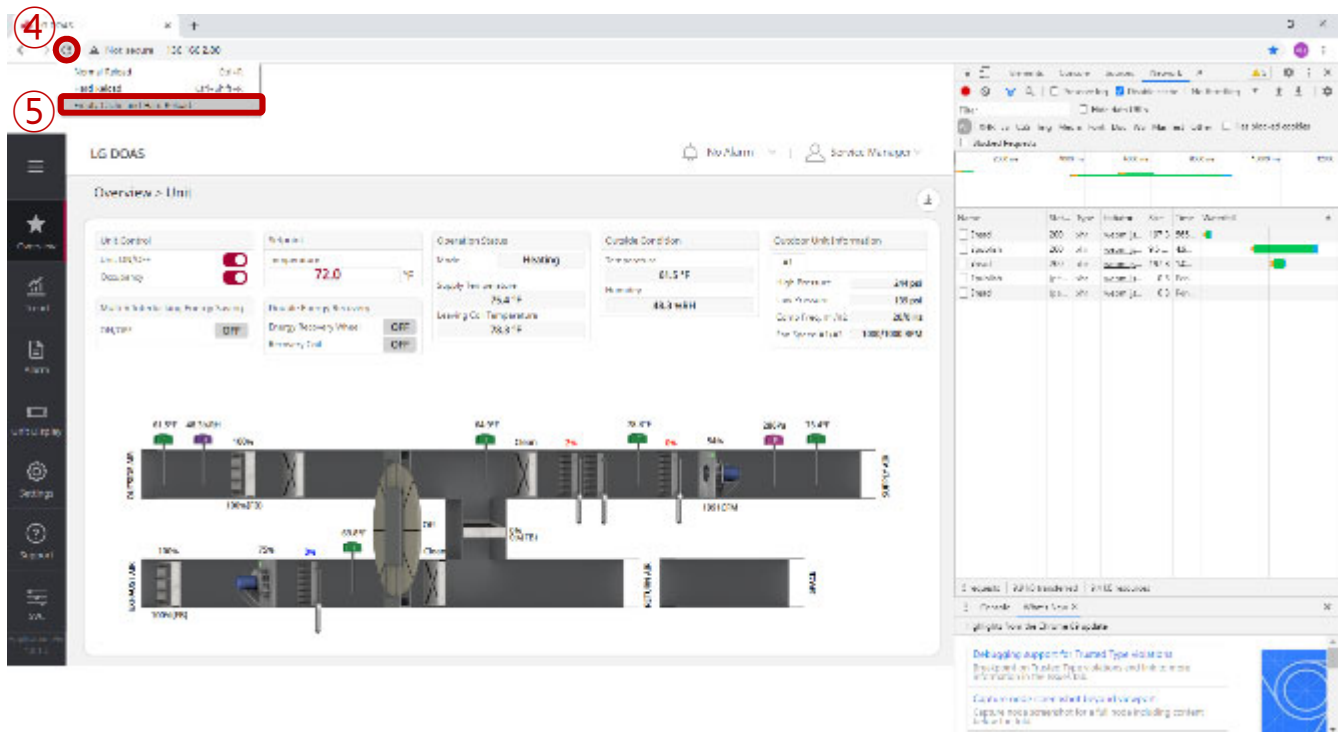
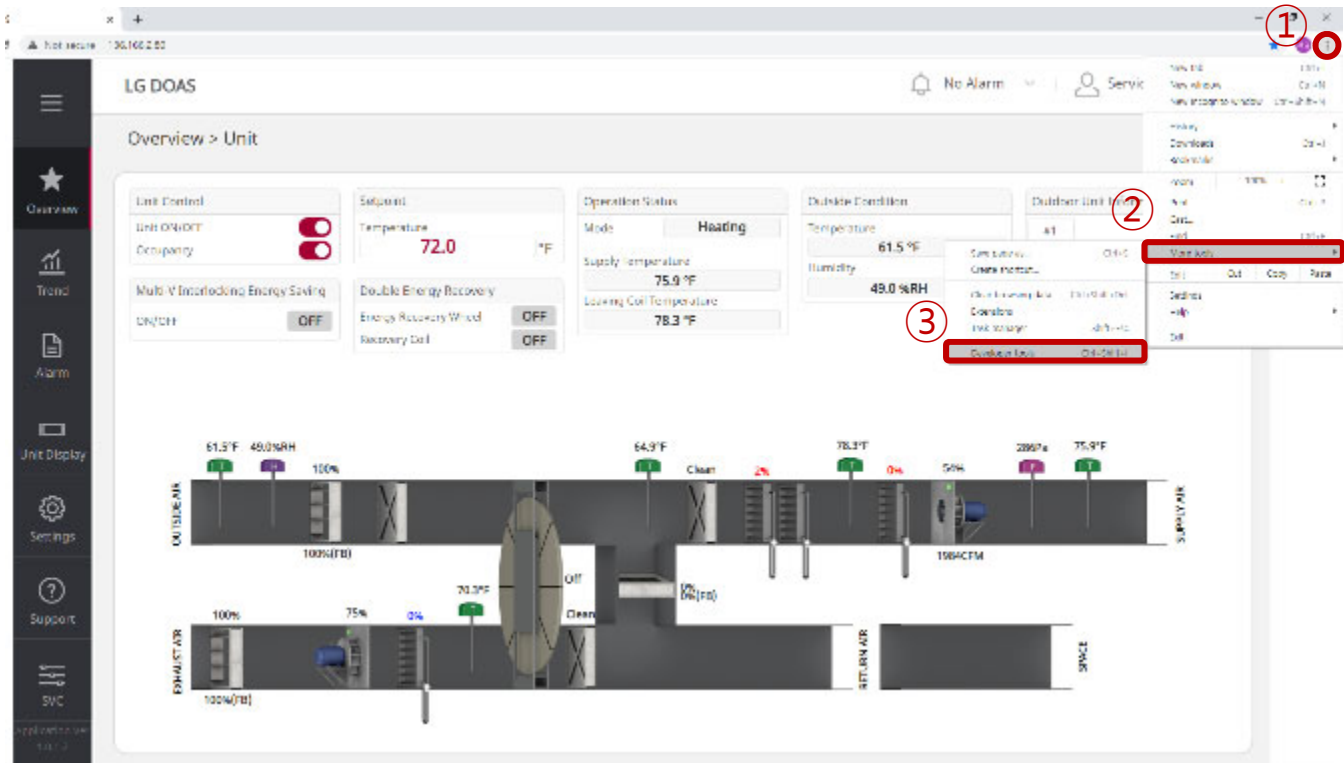
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Procedure after upgrading CAREL software

After a Firmware update user needs to refresh the Chrome Browser cache.

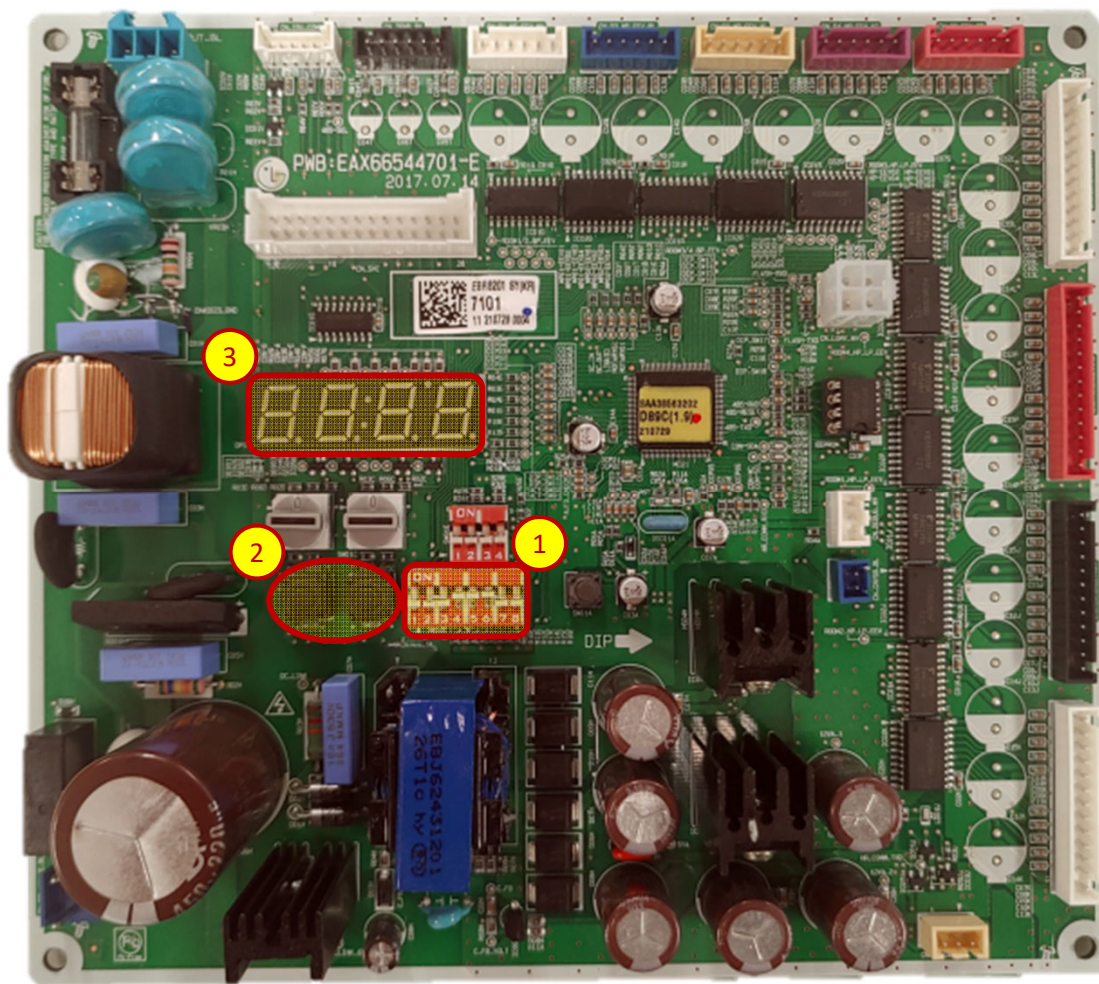
Otherwise, there is no change or blanked screen will pop up on your Web UI

- ① Click the Button  → ② More tools → ③ Developer tools
- ④ Click the Button for **3 Seconds**  → ⑤ Empty Cache and Hard Reload



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How to reset the HR PCB in DOAS



1. Power Off of DOAS unit
2. Set 8-Pin Dip switch On (4, 5, 6)



3. Push 2 buttons simultaneously for more than 1 second.



4. 7 segment display shows whether the HR PCB Reset is a success or not.
 - Succeed : 7 Segment display 'rE'
 - Fail : 7 Segment display 'Er'



5. After HR PCB reset is succeeded, turn back the dip switch setting.
6. Power on of DOAS unit.

