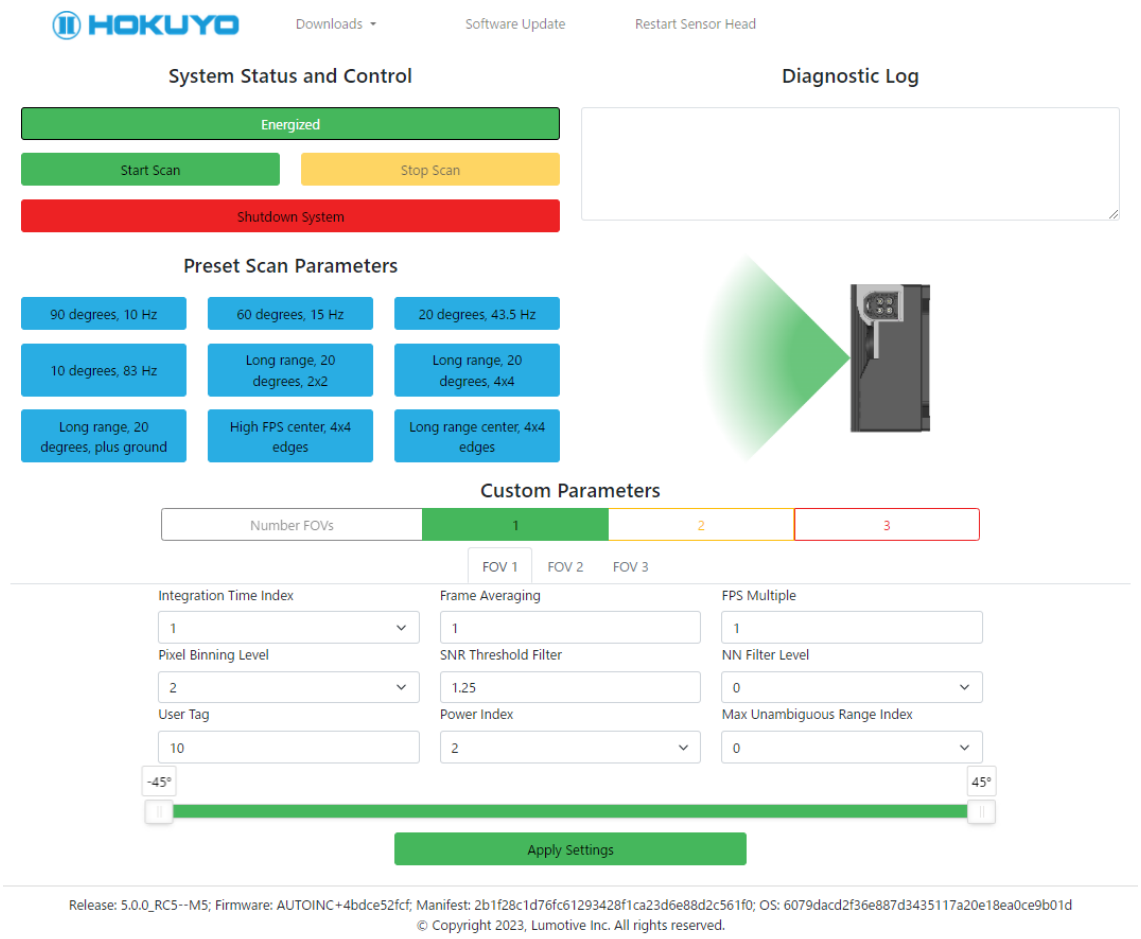
Instruction manual for YLM Web UI

The Web UI (User Interface) is provided for YLM-X001 (hereinafter referred to as YLM) setting. This UI is a tool for starting/stopping scan, setting/changing FOVs and other parameters.



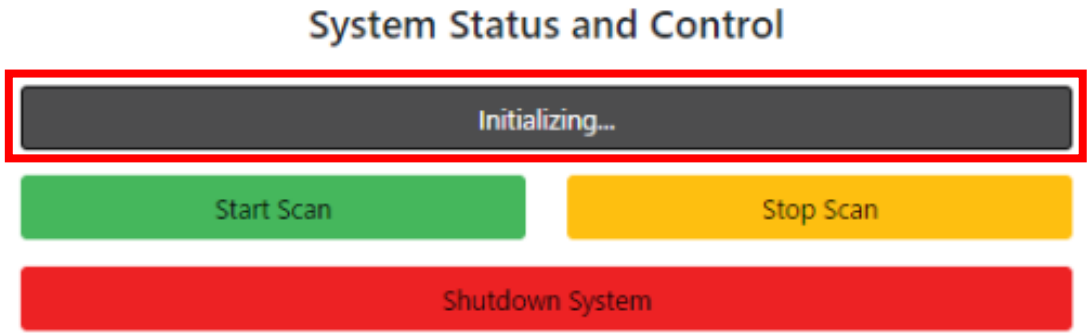
Whole image of Web UI

How to open Web UI

① Connect the power connector and the Ethernet connector to PC and YLM, and turn on the DC power.

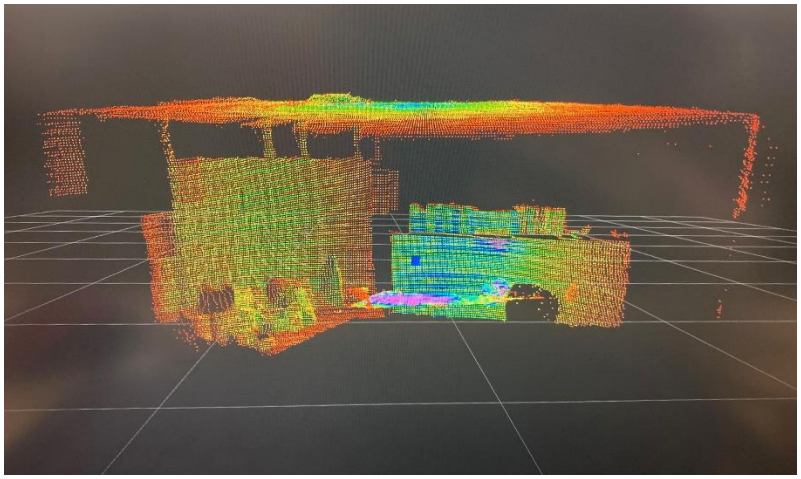
② Open the browser and type “192.16.0.10”. Then Web UI will open.

③ After Web UI opens, “Initializing…” in System Status and Control flashes in gray as below.



④After “Energized” turns green, push “Start Scan”. Then “System is scanning” blinks yellow and red, which shows scanning started.

The point cloud data example with Rviz

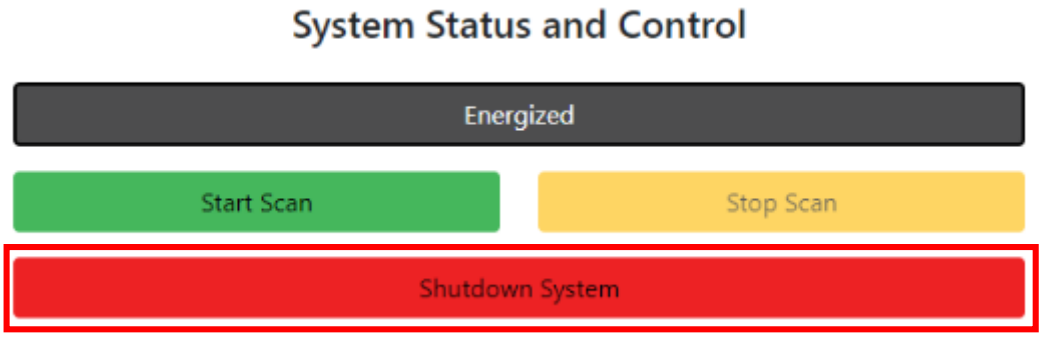


How to stop

①Click “Stop Scan” in System Status and Control and then make sure that the status will change from “System is scanning” to “Ready”.

②Push “Shutdown System”.

*Please be sure to push “Shutdown System” in order to shut down the system properly. Otherwise, the malfunction of the file system and the NCB memory degradation may occur.



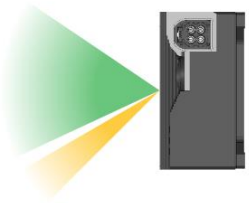
③Switch off the DC power and close Web UI.

How to set vertical FOV

Example） Set 2 FOVs. FOV1 is set wider to detect the travelling direction and FOV2 is set narrower to detect road surface conditions such as holes and steps.

*Note

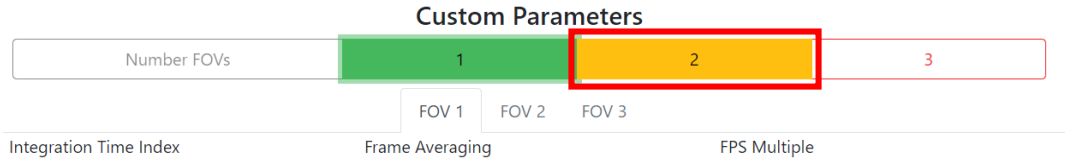
Horizontal FOV: 120 degrees fixed. Vertical FOV: 90 degrees dynamically changeable.



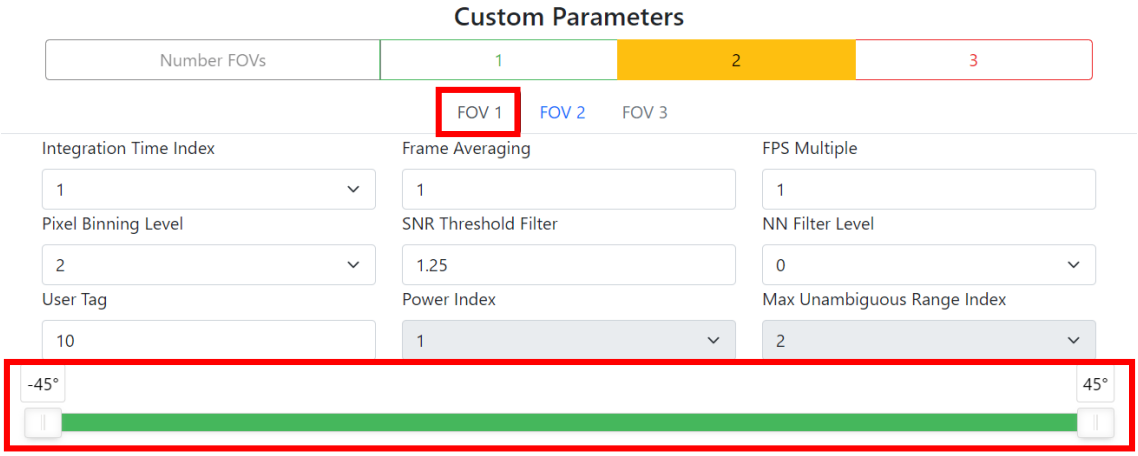
The following describes how to set multiple FOVs.

①Click “2” of Number FOVs in Custom Parameters.

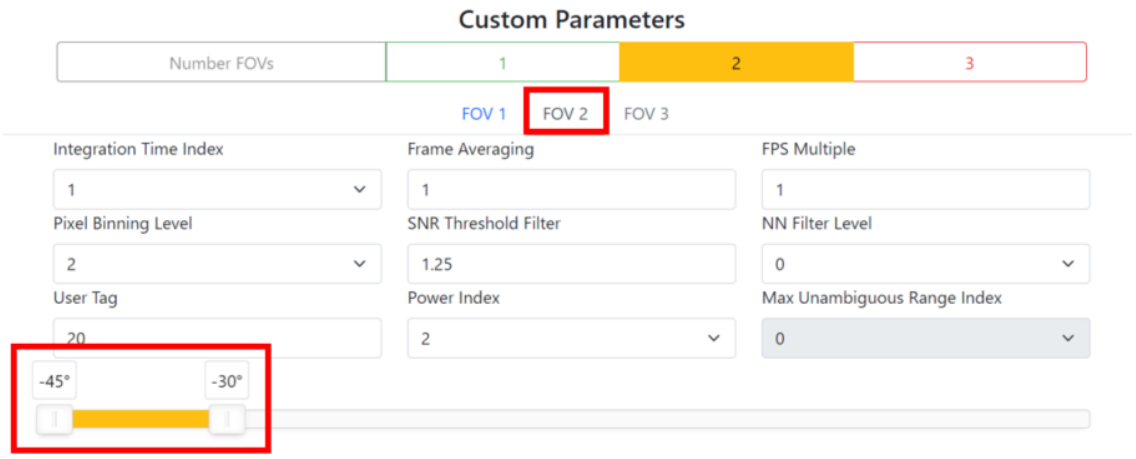
This number (1, 2, or 3) is the parameter to select how many FOVs to set.



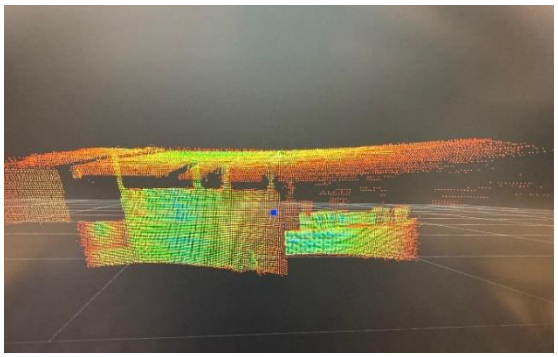
②To begin, click “FOV1” to set 1st FOV. In case of setting FOV1 to -20~+35 degrees, move the bottom bar to the corresponding values.

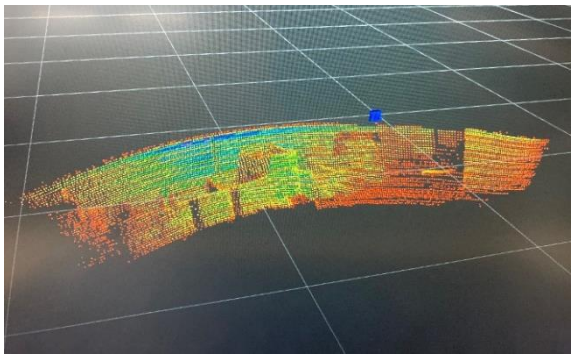


③Click “FOV2” to set 2nd FOV. In case of setting FOV2 to -45~-30 degrees, move the bottom bar to the corresponding values in the same procedure as above.



④Push “Apply Settings”, then the setting will be applied.
The left picture shows FOV1 and the right picture shows FOV2.





Please refer to the following description for details of Custom Parameters.

Parameter	Min	Max	Description
Integration Time Index	0	2	Set the accumulation time of the reflected light on the pixel for each direction of laser irradiation. 0 ：10μs 1 ：15μs 2 ：20μs
Frame Averaging	0	31	Set the number of moving averaging process in time to reduce noise. Frames are still emitted over the network at the nominal frame rate but each is an average of the previous N frames. A value of 0 and 1 both results in no frame averaging.
FPS Multiple	1	63	Set the frame rate ratio for multiple FOVs. Can be set in one degree increments.
Pixel Binning Level	1	4	Set the binning of the light-receiving pixels. The following settings are available. 1 ：without binning（VGA） 2 ：2×2 binning （QVGA） 4 ：4×4 binning （QQVGA）
SNR (Signal to Noise ratio) Threshold Filter	0	511.87	Set the SNR threshold value. Pixels with an SNR lower than this value are assumed to be pixels that could not be measured correctly and the distance is set to 0.
NN (Nearest Neighbor) Filter Level	0	5	Set NN filter (nearest neighbor filter). Noise can be excluded by activating the filter, but the resolution will be reduced. The following settings are available. 0：No filtering. 1：Requires 3 neighbors in 3×3 pixel window. 2：Requires 5 neighbors in 5×5 pixel window. 3：Requires 5 neighbors in 6×6 pixel window. 4：Requires 7 neighbors in 7×7 pixel window. 5：Requires 11 neighbors in 9×9 pixel window.
User Tag	0	4095	Identifier attached to the Type D header. When changing a parameter during scanning, this can be used to determine whether the received measurement data is the data after the parameter change. Refer to the communication specifications for data acquisition for Type D header.

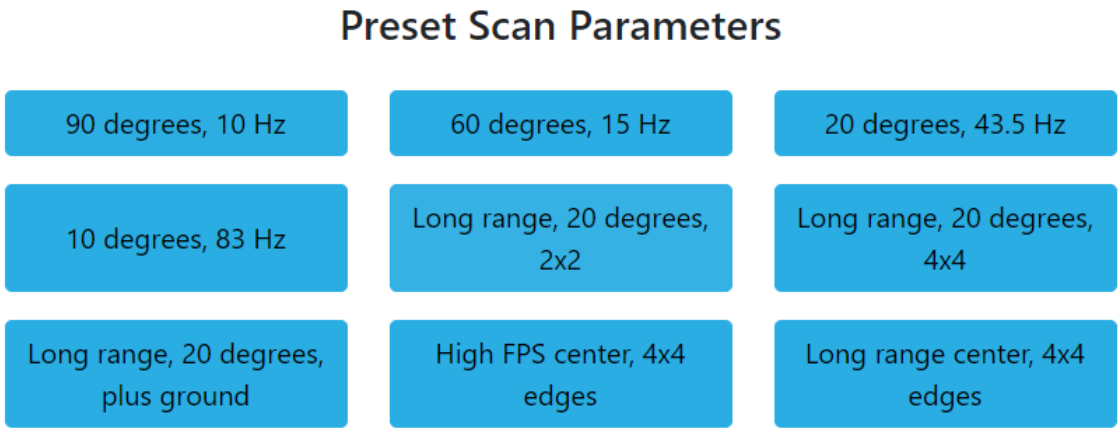
Power Index	0	2	Set the output laser power. The maximum output is 100%. 0: 50% 1: 75% 2: 100%
Max Unambiguous Range Index	0	1	Set the measurable maximum distance. If an object farther than this maximum distance is measured, incorrect distance values will be output. 0: 25.2m 1: 32.4m *2

*1 Please refer to the communication specifications for data acquisition for Type D header.

*2 YLM-X001 is not compatible with 32.4m due to prototype.

Preset Scan Parameters

9 preset scan parameters are provided as follows. By pressing one of the following, the specified parameter can be set.



Detailed information of Preset Scan Parameters

FOV 90 deg（-45~+45 deg） Frame rate 10Hz	FOV 60 deg（-30~+30 deg） Frame rate 15Hz	FOV 20 deg（-10~+10 deg） Frame rate 43.5Hz
FOV 10 deg（-5~+5 deg） Frame rate 83Hz	Frame Averaging 6 FOV 20 deg Pixel binning level 2	Frame Averaging 6 FOV 20 deg Pixel binning level 4
FOV1 Frame Averaging 6 FPS Multiple 6 Center FOV 20 deg（-10~+10 deg） Pixel binning level 2 FOV2 (Frame Averaging 1) (FPS Multiple 1) Ground FOV 35 deg（-45~-10 deg） Pixel binning level 4	FOV2 FPS Multiple 10 Center FOV 10 deg（-5~+5 deg） Pixel binning level 2 FOV1, FOV3 (FPS Multiple 1) Upper/lower FOV each 25 deg（-30~-5、+5~+30 deg） Pixel binning level 4	FOV2 Frame Averaging 6 FPS Multiple 6 Center FOV 10 deg（-5~+5 deg） Pixel binning level 2 FOV1, FOV3 (Frame Averaging 1) (FPS Multiple 1) Upper/lower FOV each 25 deg（-30~-5、+5~+30 deg） Pixel binning level 4