



FieldAnalyst for Gate Ver.4.0 Operations Guide

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1. Introduction

FieldAnalyst (Gender & Age Auto-Estimation System) is a system that automatically counts number of persons entered/exited, detects human faces from images captured by video cameras, estimates the gender and age group of persons entered, and exports the results digitally in real-time.

This product consists of the following software and manuals:

Software:

FieldAnalyst

Manual:

FieldAnalyst Installation Guide

FieldAnalyst Operations Guide

This guide (FieldAnalyst Operations Guide) provides information on operational procedures of FieldAnalyst.

Important notice:

- To install FieldAnalyst, the license key is required.
- To protect personal information, FieldAnalyst does not store captured images on any computers.

Copyright notice:

Product names mentioned in this guide are trade marks or registered trademarks of respective company.

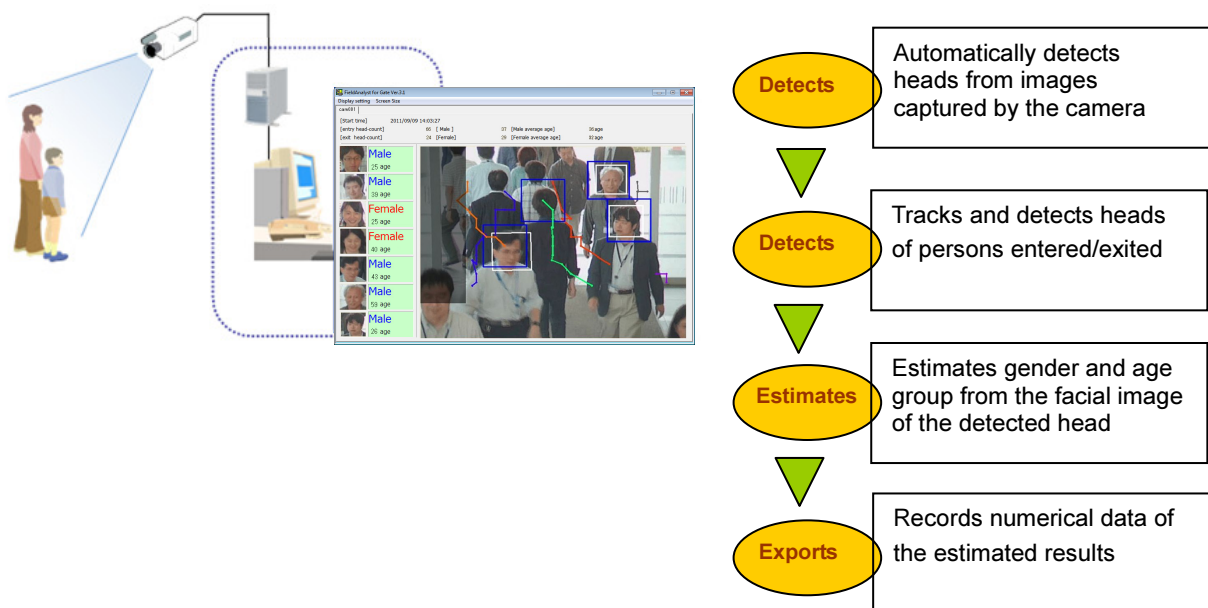
FieldAnalyst uses OpenCV developed by Intel Corporation. Regarding the terms of use and other conditions, refer to "IntelLicenseAgreement.txt" included in the installation media.

2. About FieldAnalyst

2.1 Overview

FieldAnalyst (Gender & Age Auto-Estimation System) automatically detects human faces from images captured by video cameras, estimates the gender and age group of persons entered/exited, and stores the results digitally in real-time.

FieldAnalyst can be widely used for marketing, etc., as it enables you to automatically perform demographic analysis of visitors, etc. at any time, which was done by human hands in the past.



2.2 Key Features

The key features of FieldAnalyst are as follows.

- Capable of acquiring data 24/7, 365 days a year

The data can be acquired 24/7, 365 days a year and can be compared from various viewpoints on an hourly, daily, weekly, monthly and yearly basis.

- Analyzing attributes in real-time from images and exporting the results

FieldAnalyst instantly counts number of persons entered/exited in front of cameras, estimates gender/age group of persons entered and exports the results.

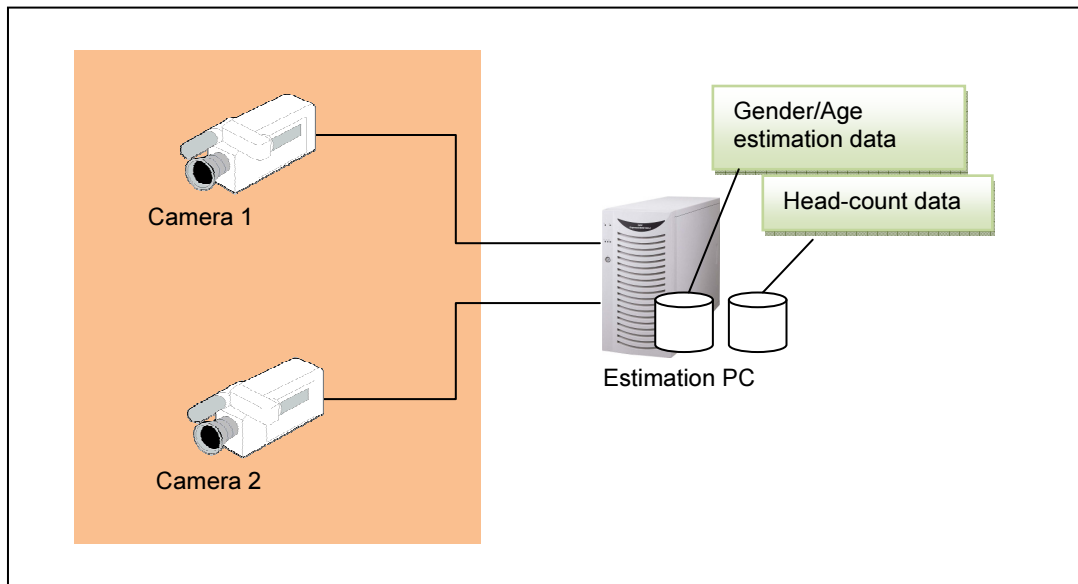
- Providing consistent criteria of the system estimation

FieldAnalyst is capable of continuous estimation by consistent and objective criteria, which cannot be achieved by counting with human efforts.

2.3 Configuration

FieldAnalyst operates in the following configuration.

System Configuration Example

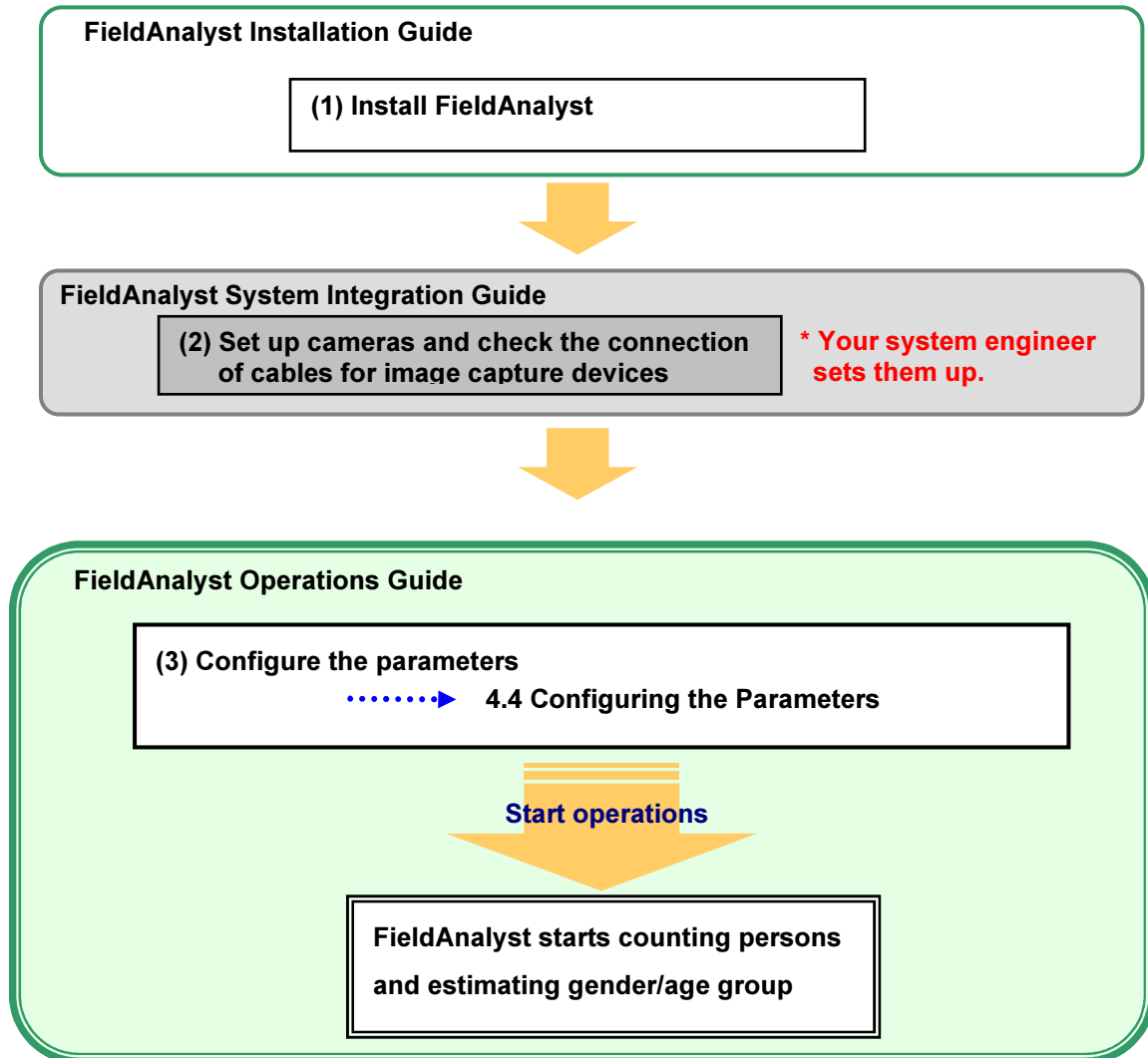


- * The same number of video capture cards as the number of installed cameras is required.
- * Up to 3 cameras can be connected per recommended PC.
- * Estimation cannot be performed by connecting 1 IP camera to multiple estimation PCs.

3. Steps for Using FieldAnalyst

In preparation for using FieldAnalyst, follow the steps below.

Refer to the relevant guides to set up the system properly.



4. Steps for Operating FieldAnalyst

4.1 Starting FieldAnalyst

NOTE: Make sure that FieldAnalyst is successfully installed. For the information on installation, refer to the "FieldAnalyst Installation Guide."

NOTE: To use images captured by video cameras, make sure that they can be imported into the computer. Set up the cameras to allow the captured images to be processed by FieldAnalyst.

NOTE: Make sure that standby mode of the computer on which FieldAnalyst is installed is off.

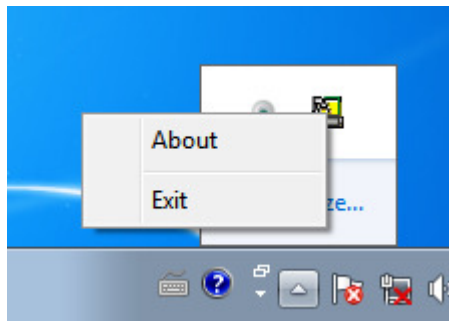
To start FieldAnalyst, select [All Programs] → [FieldAnalyst] → [FieldAnalyst].

When FieldAnalyst starts, FieldAnalyst icon (🖥️) appears in the notification area.

4.2 Operating FieldAnalyst

FieldAnalyst resides on the taskbar while in operation.

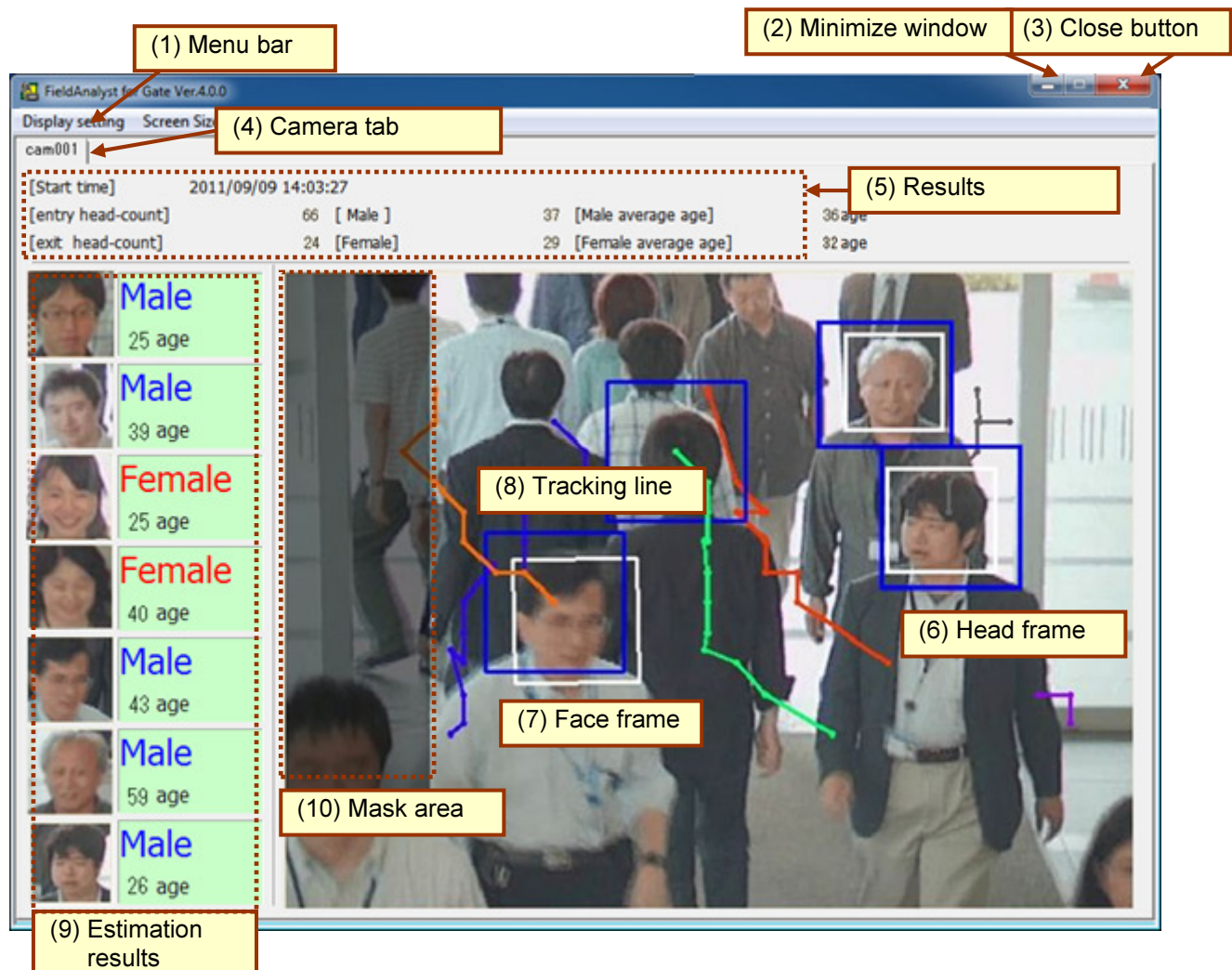
Left-click the FieldAnalyst icon in the notification area to open the menu.



Menu item	Description
About	Displays the program's version information.
Exit	Exits FieldAnalyst.

4.3 Operation Check Window

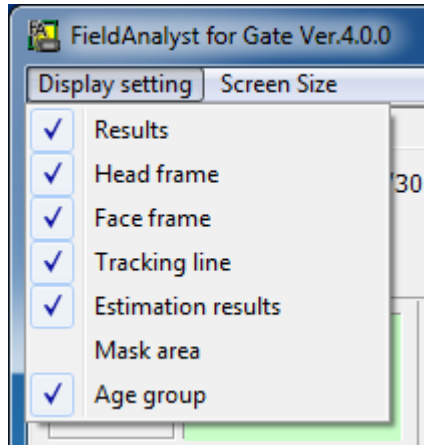
In the "operation check window," you can confirm the operating status by displaying the image being processed by Field Analyst. To open the operation check window, select [All Programs] → [FieldAnalyst] → [FA Result Viewer].



4.3.1 Descriptions on the Menu Items

(1) Menu bar

The [Display setting] menu exists on the menu bar. Details on each menu item are as follows.



Item		Description
Display setting	Results	Displays information on the accumulated total number of persons entered/exited and those for which gender/age estimation was performed (by gender), and average age. ... (5)
	Head frame	Surrounds the detected heads with frames. ... (6)
	Face frame	Surrounds the detected faces with frames. ... (7)
	Tracking line	Displays tracking line of heads. ... (8)
	Estimation results	Displays detailed information of each estimation result. ... (9)
	Mask area	Displays the masked area in translucent. ... (10)
	Age group	Displays the age group.
Screen Size	50%	Changes the size of the operation check window to 50 %.
	100%	Changes the size of the operation window to 100 %.

(2) Minimizing window

This button is to minimize the operation check window. Note that minimizing the operation check window does not terminate Field Analyst.

(3) Close button

This button is to close the operation check window. Note that it does not terminate Field Analyst.

(4) Camera tab

This tab is to switch tab pages to open a tab page of each camera.

(5) Results

When [Display setting] – [Results] is selected on the menu bar, information on the accumulated total

number of persons entered/exited and those for which age/gender estimation was performed (by gender), and average age is displayed.

(6) Display head frame

When [Display setting] – [Display head frame] is selected on the menu bar, the detected heads are surrounded by frames.

(7) Display face frame

When [Display setting] – [Display face frame] is selected on the menu bar, the successfully detected faces are surrounded by frames.

(8) Tracking line

When [Display setting] – [Tracking line] is selected on the menu bar, the results of tracking the detected heads are displayed in lines.

(9) Estimation results

When [Display setting] – [Estimation results] is selected on the menu bar, the detailed information on the estimation results is displayed.

The information on the estimated face images, gender and age group can be displayed for 7 persons at maximum.

(10) Display mask area

When [Display setting] – [Display mask area] is selected on the menu bar, the mask range is displayed in translucent.

If not selected, the mask area is not displayed.

* To enable the mask image setting, a created mask image needs to be specified by using the parameter.

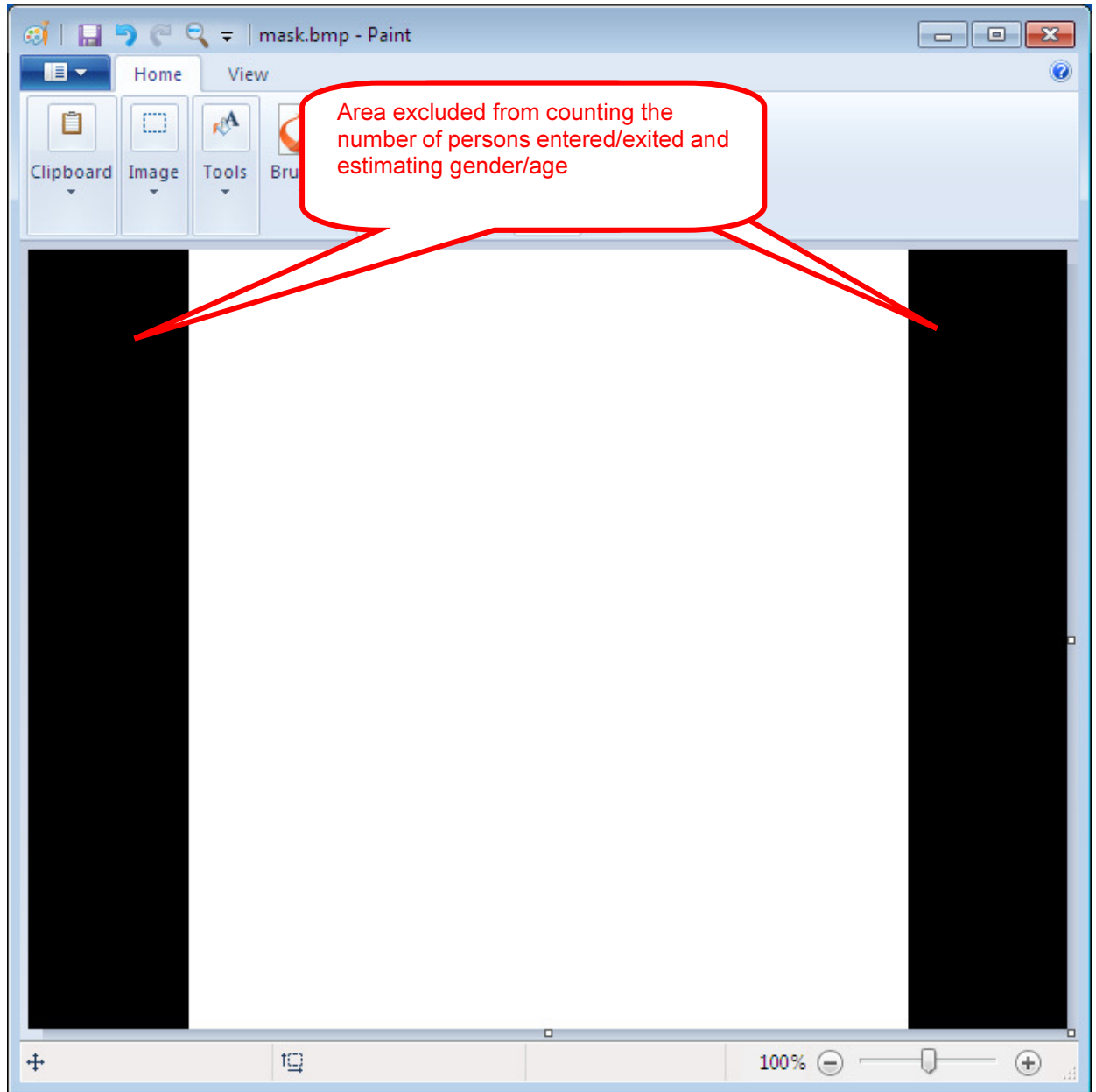
* Details of mask.bmp

- Size: Adjust to the resolution of the processed image.

- File type: 256-color bitmap

- Paint in black for the area where you want to exclude from counting the number of persons entered/exited and estimating gender/age.

Ex.) mask.bmp

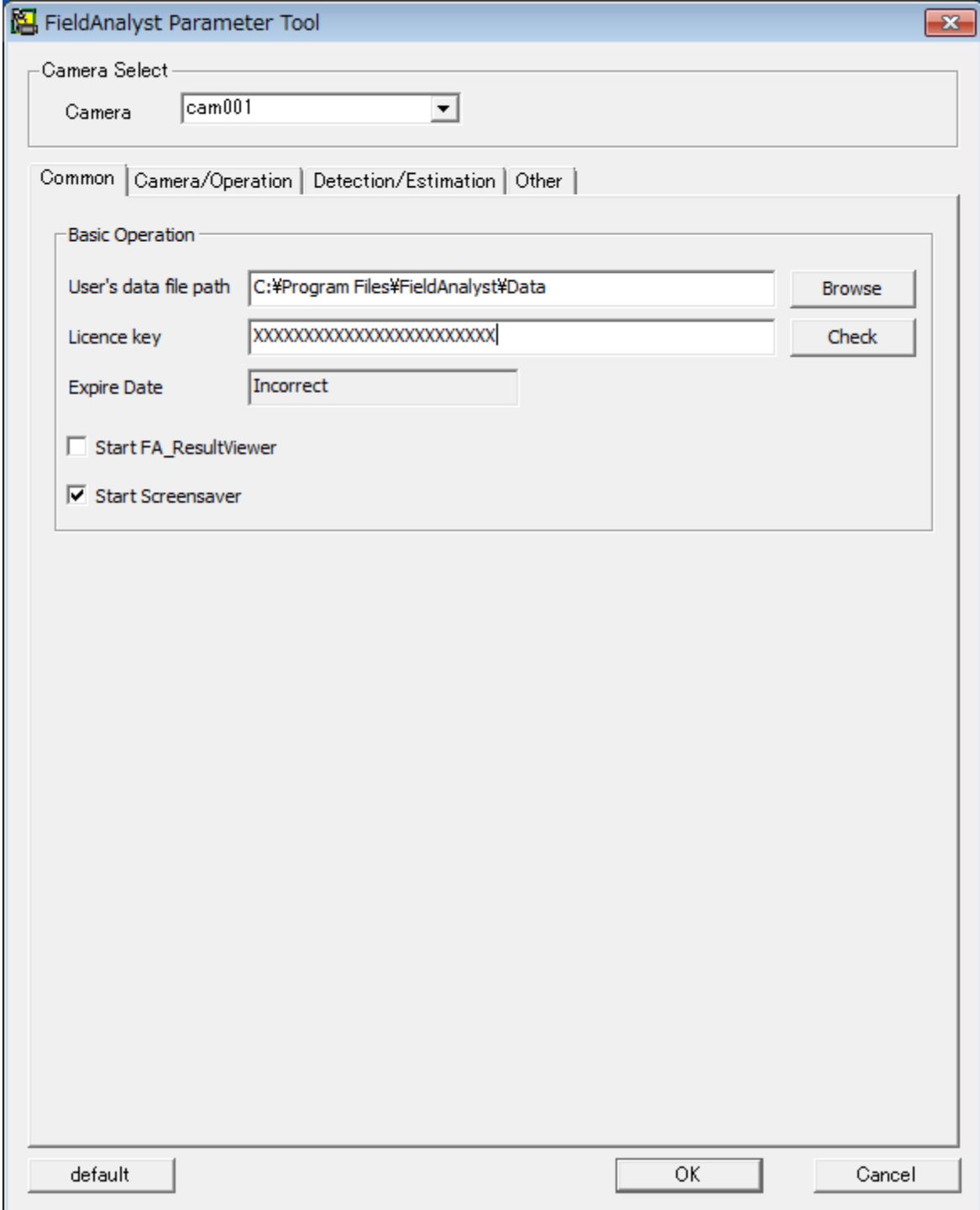


4.4 Configuring the Parameters

The parameters can be configured after starting FA ParamEditor.

To start FA ParamEditor, select [All Programs] → [FieldAnalyst] → [FA ParamEditor].

4.4.1 Common



The image shows the 'FieldAnalyst Parameter Tool' dialog box. It has a title bar with a close button. Below the title bar is a 'Camera Select' section with a 'Camera' dropdown menu set to 'cam001'. Below this is a tabbed interface with four tabs: 'Common', 'Camera/Operation', 'Detection/Estimation', and 'Other'. The 'Common' tab is selected. Inside the 'Common' tab is a 'Basic Operation' section. This section contains three text input fields: 'User's data file path' (containing 'C:\Program Files\FieldAnalyst\Data'), 'Licence key' (containing 'XXXXXXXXXXXXXXXXXXXX'), and 'Expire Date' (containing 'Incorrect'). To the right of the first two fields are 'Browse' and 'Check' buttons respectively. Below these fields are two checkboxes: 'Start FA_ResultViewer' (unchecked) and 'Start Screensaver' (checked). At the bottom of the dialog are three buttons: 'default', 'OK', and 'Cancel'.

FieldAnalyst Parameter Tool

Camera Select

Camera: cam001

Common | Camera/Operation | Detection/Estimation | Other

Basic Operation

User's data file path: C:\Program Files\FieldAnalyst\Data [Browse]

Licence key: XXXXXXXXXXXXXXXXXXXX [Check]

Expire Date: Incorrect

☐ Start FA_ResultViewer

☒ Start Screensaver

default OK Cancel

In the [Common] settings, configure the following items. (General settings for all cameras)

Item	Description
Camera	Select a camera for which to configure the parameter settings.
User's data file path	Specify the path to the export destination. * To specify a folder on the network, make sure that write permissions are granted for the folder.
License key	License key entered during the installation process is displayed. To update the license, overwrite this item.
Expire Date	Expiration date of the license key is displayed. Clicking the [Check] button updates it to the latest information.
Start FA_ResultViewer	Selecting this check box automatically opens the operation check window when starting FieldAnalyst.
Start Screensaver	Selecting this check box automatically starts the screensaver when starting FieldAnalyst.
default button	Clicking this button reverts the parameters to the default values.
OK button	Clicking this button reflects the displayed parameters to the parameter file and closes the FieldAnalyst Parameter Tool.
Cancel button	Clicking this button closes the FieldAnalyst Parameter Tool without reflecting the displayed parameters to the parameter file.

4.4.2 Camera/Operation (for Analog Camera)

The screenshot shows the 'FieldAnalyst Parameter Tool' dialog box with the 'Camera/Operation' tab selected. The 'Camera Select' section has a dropdown menu set to 'cam001'. The 'Image related' section contains three fields: 'Camera type' set to 'Analog', 'Camera name' set to 'cam001', and 'Capture board' set to 'Caputer boad can not be found.'. The 'Time slot for estimation' section has two radio buttons: 'Estimate constantly' (selected) and 'Specify time slot'. Below the radio buttons are time selection fields: '09' H '00' M - '20' H '00' M. The 'Mask image setting' section has two radio buttons: 'unused' (selected) and 'use'. Below the 'use' radio button is a 'Mask image file' text box and a 'Browse' button. At the bottom of the dialog are three buttons: 'default', 'OK', and 'Cancel'.

FieldAnalyst Parameter Tool

Camera Select

Camera: cam001

Common | Camera/Operation | Detection/Estimation | Other

Image related

Camera type: Analog

Camera name: cam001

Capture board: Caputer boad can not be found.

Time slot for estimation

☒ Estimate constantly

☐ Specify time slot

09 H 00 M - 20 H 00 M

Mask image setting

☒ unused

☐ use

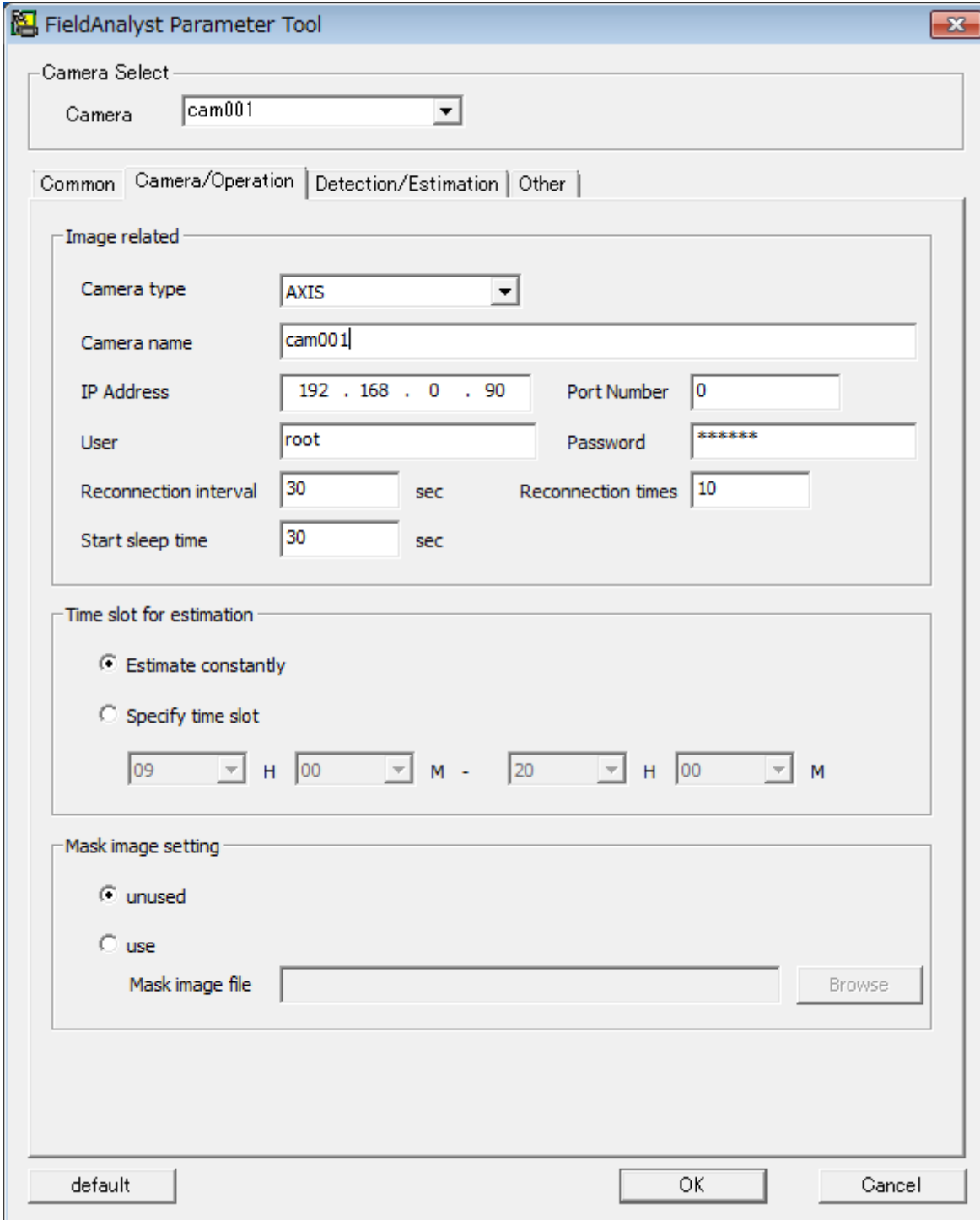
Mask image file: [Text Box] [Browse]

[default] [OK] [Cancel]

In the [Camera/Operation] settings, configure the following items. The parameters for each camera can be configured by selecting each camera from the drop-down list.

Item	Description
Camera type	Select the type of the camera to be used.
Camera name	Specify the name to identify the camera.
Capture board	Select the capture board to be used.
Time slot for estimation	Specify the time slot for processing. To limit the time slot for processing, configure the setting as follows. Select the [Specify time slot] radio button. Select the start time and end time.
Mask image setting	To exclude an area from being processed, specify a mask image.

4.4.3 Camera/Operation (for IP Camera)



The image shows the 'FieldAnalyst Parameter Tool' dialog box. It has a title bar with a close button. The main area is divided into tabs: 'Common', 'Camera/Operation', 'Detection/Estimation', and 'Other'. The 'Camera/Operation' tab is selected. At the top, there is a 'Camera Select' section with a dropdown menu showing 'cam001'. Below this, the 'Image related' section contains fields for 'Camera type' (set to 'AXIS'), 'Camera name' (set to 'cam001'), 'IP Address' (set to '192 . 168 . 0 . 90'), 'Port Number' (set to '0'), 'User' (set to 'root'), 'Password' (set to '*****'), 'Reconnection interval' (set to '30' sec), 'Reconnection times' (set to '10'), and 'Start sleep time' (set to '30' sec). The 'Time slot for estimation' section has two radio buttons: 'Estimate constantly' (selected) and 'Specify time slot'. Below the radio buttons are time selection fields: '09' H '00' M - '20' H '00' M. The 'Mask image setting' section has two radio buttons: 'unused' (selected) and 'use'. Below the 'use' radio button is a 'Mask image file' text box and a 'Browse' button. At the bottom of the dialog are three buttons: 'default', 'OK', and 'Cancel'.

FieldAnalyst Parameter Tool

Camera Select

Camera: cam001

Common | Camera/Operation | Detection/Estimation | Other

Image related

Camera type: AXIS

Camera name: cam001

IP Address: 192 . 168 . 0 . 90 Port Number: 0

User: root Password: *****

Reconnection interval: 30 sec Reconnection times: 10

Start sleep time: 30 sec

Time slot for estimation

☒ Estimate constantly

☐ Specify time slot

09 H 00 M - 20 H 00 M

Mask image setting

☒ unused

☐ use

Mask image file: Browse

default OK Cancel

In the [Camera/Operation] settings, configure the following items.

Item	Description
IP Address	Specify the IP address for connecting to the IP camera.
Port Number	Specify the port number for connecting to the IP camera.
User	Specify the user name for connecting to the IP camera.
Password	Specify the password for connecting to the IP camera.
Reconnection interval	Specify the interval between reconnection attempts that are made if an error occurs in the IP camera and the connection with the IP camera is disconnected. The reconnection process is executed at the specified intervals (second).
Reconnection times	Specify the number of times the reconnection attempt is made if an error occurs in the IP camera and the connection with the IP camera is disconnected. The reconnection process is executed the number of times specified.
Start sleep time	Specify the duration of time the sleep mode is applied when starting FieldAnalyst for the first time. FieldAnalyst starts after running the process for the specified time (second).

* The remaining items are the same as those for analog camera.

4.4.4 Detection/Estimation

The screenshot shows the 'FieldAnalyst Parameter Tool' window with the 'Detection/Estimation' tab selected. The window has a title bar with a close button (X). Below the title bar, there is a 'Camera Select' section with a dropdown menu showing 'cam001'. Below this is a tabbed interface with four tabs: 'Common', 'Camera/Operation', 'Detection/Estimation' (selected), and 'Other'. The 'Detection/Estimation' tab contains three sections: 'Head Detection' with 'Threshold for Head Detection' (0.28) and 'Head size' (71,100); 'Face Detection' with 'Threshold for Face Detection' (0.40); and 'Gender & Age Estimation' with 'Threshold for Gender' (0.50) and 'Offset for Age' (0). At the bottom of the window, there are three buttons: 'default', 'OK', and 'Cancel'.

FieldAnalyst Parameter Tool

Camera Select

Camera: cam001

Common | Camera/Operation | Detection/Estimation | Other

Head Detection

Threshold for Head Detection: 0.28

Head size: 71,100

Face Detection

Threshold for Face Detection: 0.40

Gender & Age Estimation

Threshold for Gender: 0.50

Offset for Age: 0

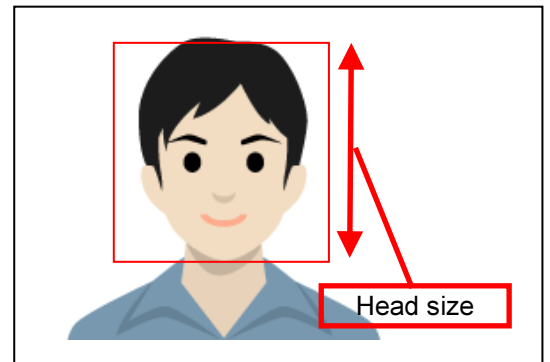
default OK Cancel

In the [Detection/Estimation] settings, configure the following items.

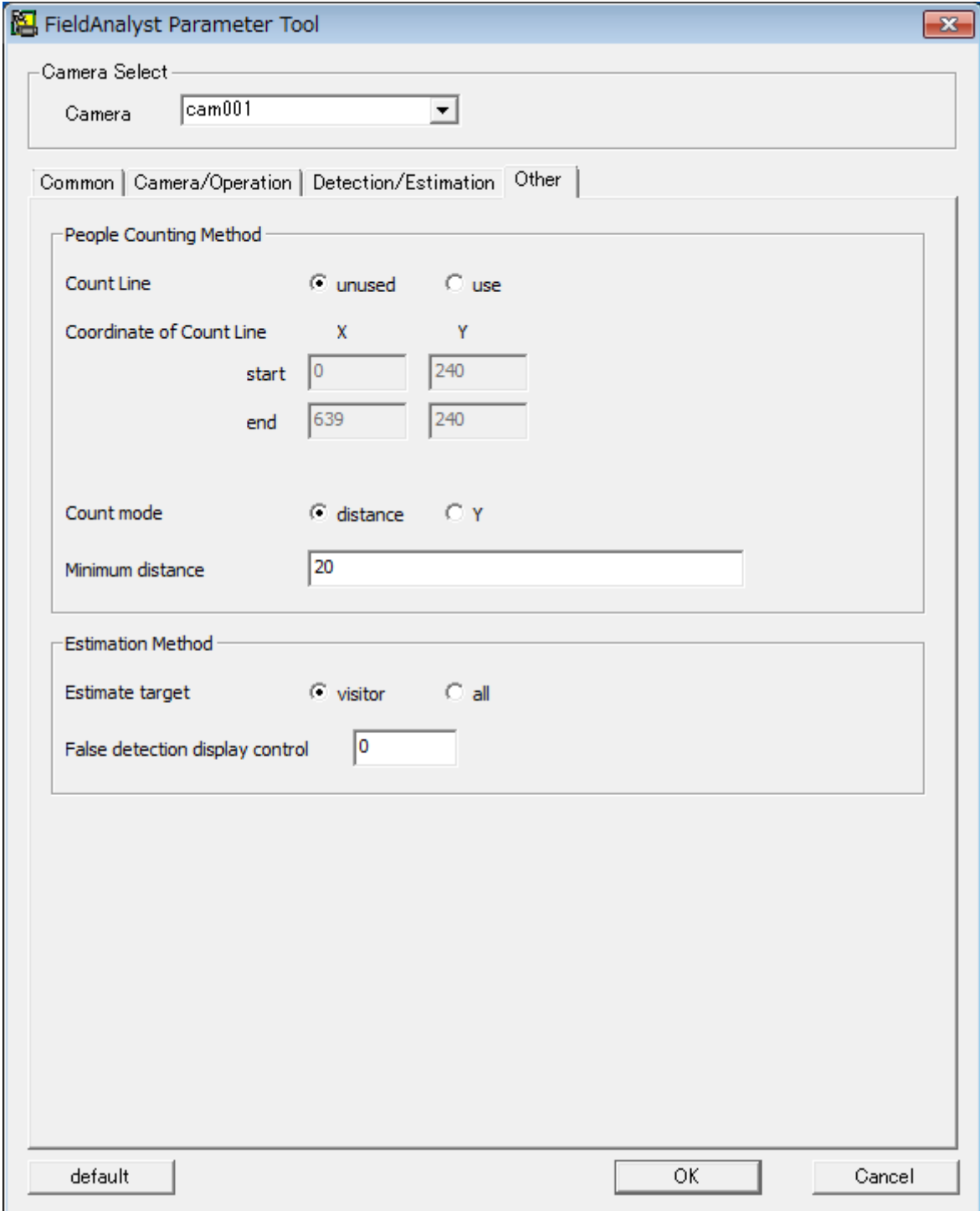
The parameters for each camera can be configured by selecting each camera from the drop-down list.

Item	Description
Threshold for Head Detection	Threshold for head detection. Heads can be detected with a value higher than this value. Default: 0.28 *Available range: 0.0 ~ 1.0
Head size	Specify the size of heads you want to detect. Multiple values can be specified by separating them with a comma (,). The higher the value, persons in more distant can be detected.*1 Default: 71,100 *Available range: 25 ~ 250
Threshold for Face Detection	Threshold for face detection. Faces can be detected with a value higher than this value. Default: 0.40 *Available range: 0.0 ~ 1.0
Threshold for Gender	If the value is higher than that specified, the person is judged as a male. If the value is lower than that specified, the person is judged as a female. Default: 0.5 *Available range: 0.0 ~ 1.0
Offset for Age	If [-10] is specified, 10 (years) will be subtracted from the estimated age. If [10] is specified, 10 (years) will be added to the estimated age.

*1 Refer to the figure to the right to configure the head size you want to detect. Note that the operations become slower if you add the head size setting value. Adjust the number of values added according to the specifications of the PC.



4.4.5 Other



The image shows a screenshot of the 'FieldAnalyst Parameter Tool' dialog box. The window has a title bar with the text 'FieldAnalyst Parameter Tool' and a close button. Below the title bar, there is a 'Camera Select' section with a dropdown menu showing 'cam001'. Below this, there are four tabs: 'Common', 'Camera/Operation', 'Detection/Estimation', and 'Other'. The 'Other' tab is currently selected. Inside the 'Other' tab, there are two main sections: 'People Counting Method' and 'Estimation Method'. The 'People Counting Method' section contains a 'Count Line' section with two radio buttons: 'unused' (selected) and 'use'. Below this is a 'Coordinate of Count Line' section with two columns: 'X' and 'Y'. Under 'X', there are 'start' and 'end' labels with input fields containing '0' and '639' respectively. Under 'Y', there are 'start' and 'end' labels with input fields containing '240' and '240' respectively. Below the coordinate section is a 'Count mode' section with two radio buttons: 'distance' (selected) and 'Y'. Below this is a 'Minimum distance' section with an input field containing '20'. The 'Estimation Method' section contains an 'Estimate target' section with two radio buttons: 'visitor' (selected) and 'all'. Below this is a 'False detection display control' section with an input field containing '0'. At the bottom of the dialog box, there are three buttons: 'default', 'OK', and 'Cancel'.

FieldAnalyst Parameter Tool

Camera Select

Camera: cam001

Common | Camera/Operation | Detection/Estimation | Other

People Counting Method

Count Line: ☒ unused ☐ use

Coordinate of Count Line

	X	Y
start	0	240
end	639	240

Count mode: ☒ distance ☐ Y

Minimum distance: 20

Estimation Method

Estimate target: ☒ visitor ☐ all

False detection display control: 0

default OK Cancel

In the [Other] settings, configure the following items. The parameters for each camera can be configured by selecting each camera from the drop-down list.

Item	Description
Count Line	<p>Select the [used] radio button. It is a method of counting persons entered/exited by watching the step-over direction of the persons on the count line.</p> <p>Select the [unused] radio button It is a method of counting persons entered/exited by watching the moving distance of the persons.</p>
Coordinate of Count Line	<p>Specifies the start and end point of the count line. There is a relation between the count line direction (start point → end point) and judgment of counting the number of persons entered/exited. When the count line is drawn from left to right, a person comes close to the camera from distant is counted in the number of persons entered. Available range: X axis: 0 ~ 640, Y axis: 0 ~ 480</p>
Count mode	<p>Basis of counting heads. distance: Persons who are away more than the minimum distance (between the start point and end point) are counted. Y: Persons who are away more than the minimum distance (between the start point and end point in a vertical direction) are counted.</p>
Minimum distance	<p>Heads of persons who are away more than this value are counted.</p>
Estimate target	<p>Specify the target to perform the gender/age estimation. visitor: Gender/Age estimation is performed only for persons who entered. all: Gender/Age estimation is performed for all persons whose heads are detected.</p>
False detection display control	<p>The previous human detection coordinate is compared with the target human detection coordinate, and if a person is away more than this value, a human detection frame (blue frame) is displayed in the operation check window.</p>

4.5 Steps for Exiting FieldAnalyst

To exit FieldAnalyst, select [Exit] from the FieldAnalyst icon in the notification area.

* Under the normal operation, FieldAnalyst restarts by task scheduler after the specified time period even after exiting FieldAnalyst.

5. Troubleshooting

How do I start FieldAnalyst?
Solution: Execute FieldAnalyst by selecting [Start] → [All Programs].
How do I terminate FieldAnalyst completely?
Solution A: Disable [FA_Monitoring1] and [FA_Monitoring2] in Windows task scheduler. (Unselect the check boxes to run the task)
Solution B: Select [Exit] from the FieldAnalyst icon in the notification area.
How do I perform estimation at a scheduled time? How do I limit the estimation period?
A time slot for performing the estimation can be set in the [Time slot for estimation] setting by using the parameter.
How do I change the destination for saving user's data files?
The destination for saving the data can be changed in the [User's data file path] setting by using the parameter.
What do I do if FieldAnalyst does not start properly?
Contact your system engineer.

6. Contact Information

For questions or feedback on the product, please contact the following:

