

? Imaging Setting

Set appropriate imaging conditions to acquire target profiles according to the surface conditions and shapes of measurement targets (workpieces).

■ Selecting based on workpiece surface conditions and shapes

<Standard workpiece> (1)

Generally, select this setting.

Select other settings according to surface conditions and shapes if a workpiece profile cannot be acquired properly using this setting.

<Workpiece with difference in light intensity> (2)

Select when areas with very high intensity and low intensity are mixed in a profile.

This may reduce undetectable profile data in comparison with the "Standard workpiece".

The settings of "Imaging mode" can be changed when "Workpiece with difference in light intensity" is selected.

* Refer to page 6 for "Imaging mode".

Ex) Curved surface on shiny metal, mix of black rubber and metal

<Workpiece with multiple reflection> (3)

Select when the target profile cannot be acquired with "Standard workpiece" due to tracking errors caused by such factors as multiple reflection.

The settings of "Peak selection" and "Image mask" can be changed when "Workpiece with multiple reflection" is selected.

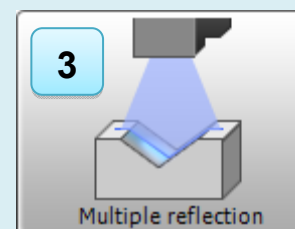
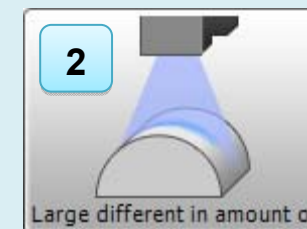
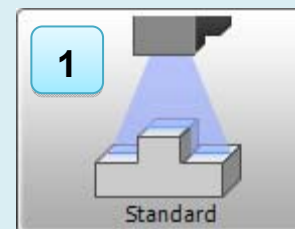
* Refer to page 5 and 6 for "Peak selection" and "Image mask".

Ex) Workpiece with V or round shaped grooves, complex shaped metal workpieces

<Translucent workpiece > (4)

Select when the target profile cannot be acquired due to tracking errors caused by light transmission through workpieces.

Ex) Milky workpiece, resin workpiece



Imaging Setting

Advanced setting allows for further settings of the imaging conditions.

Common settings for head A/head B.

■ Measurement range

Narrow the measurement range to speed up the sampling frequency (fastest trigger frequency).

By doing this, the sampling frequency (fastest trigger frequency) speed will increase.

<MIDDLE>

Narrows the measurement range to approximately 3/4 of the total (by 1/8 on each edge).

<SMALL>

Narrows the measurement range to approximately 1/2 of the total (by 1/4 on each edge).

■ Binning

Turn binning on to speed up the sampling frequency (fastest trigger frequency).

Binning is deemed to be "2 pixels in the X direction x 2 pixels in the Z direction = 4 pixel data" a single pixel for imaging.

Resolution decreases but high-speed imaging is possible without narrowing the measurement range.

Imaging Setting

Individual settings for head A/head B.

■ Characteristics of receiving response

Select characteristics of receiving response for the imaging element according to the workpiece.

<High precision>

Images at a high S/N ratio. This is mainly used for "workpieces with a small difference of reflectance in the profile" due to a small dynamic range.

<High dynamic range 1 to 3>

Improves detection ability for "workpieces with a large difference of reflectance in the profile." Shifting the setting from "1" to "3" decreases the S/N ratio, but allows detection of workpieces with larger differences of reflectance.

■ Exposure time

Set the maximum exposure time of the imaging element.

The actual exposure time is determined by settings such as the sampling frequency and multi emission.

Setting the exposure time shorter resolves such problems as too strong reflection from workpieces and blurred imaging due to fast head or workpiece scanning.

■ Control of light intensity

Set the method for adjusting the laser intensity to either "AUTO" (automatic) or "MANUAL" (limited adjustment range).

Generally, use "AUTO". "MANUAL" allows a control range to be limited.

This is effective for curbing excessive light emission with no workpiece in place.

More stable intensity control is possible by limiting the FB target area to a desired measurement area.

Imaging Setting

■ Peak detection sensitivity

Set the threshold value for peak detection.

Peak detection becomes more sensitive as the number increases from "1 (low)" to "5 (high)".

Set the sensitivity low when unnecessary peaks, such as multiple reflection, are detected.

■ Invalid data interpolation point

Invalid data refers to profile data deemed undetectable due to excessive or insufficient intensity.

If invalid data continues equal to/less than the interpolation point in the profile, this valid data is replaced with data obtained by linear-interpolating the next valid data on both sides.

* If the interpolation point is set to 255, linear interpolation is performed regardless of the amount of continuous invalid data.

* Includes data treated as invalid due to processing of multiple peaks (described later).

* Dead zone data (Refer to Tips for profile setting) has no relation with invalid data.

■ Processing of multiple peaks

<Peak selection>

Select which peak to measure when more than one peak are detected on the same X coordinate.

This is used effectively for preventing wrong detection due to multiple reflection.

[Standard (maximum peak)]

Measures a peak with the maximum intensity.

[NEAR]

Measures a peak closest to the NEAR side (the side closest to the head).

[FAR]

Measures a peak closest to the FAR side (the side furthest from the head).

? Imaging Setting

[Remove X multiple reflection]

Removes peaks that are X/Y-polarized and have multiple reflection in the X direction.

This is effective for workpieces with surface irregularities in the laser line direction.

* The settable sampling frequency (fastest trigger frequency) is twice as slow because imaging is performed twice with a single trigger.

[Remove Y multiple reflection]

Removes peaks that are X/Y-polarized and have multiple reflection in the Y direction.

This is effective for workpieces with surface irregularities perpendicular to the laser line.

* The settable sampling frequency (fastest trigger frequency) is twice as slow because imaging is performed twice with a single trigger.

[Invalidate data]

Treats peaks as invalid if there are more than one on the same X coordinate.

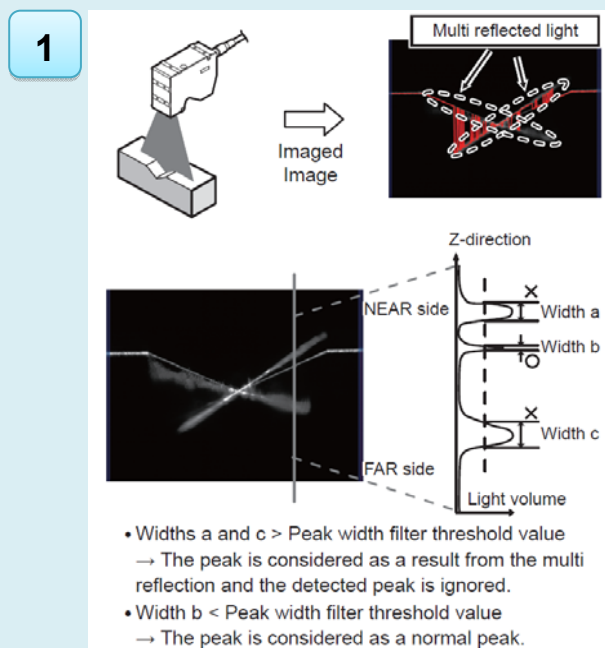
<Peak width filter> (1)

Peak shapes of ambient light and multi-reflected light tend to be wider than those of light reflected from workpieces.

With this phenomenon, processing that judges a wide peak as a "suspicious peak" and excludes it from the detection results is called the "peak width filter".

Here, select the ON/OFF setting for the filter.

* ON/OFF of the peak width filter does not affect the fastest trigger frequency.



? Imaging Setting

■ Imaging mode

The standard mode operates to "adjust (FB) parameters for the next imaging based on the intensity received in the last imaging". (2)
Set the multi emission mode if the measurement is still unstable.
However, the settable sampling frequency (fastest trigger frequency) will slow due to multiple imaging.

[Multi emission (optimized light intensity)]

A more stable profile can be acquired by using imaging parameters after multiple imaging instead of 1st imaging.

This mode images the number of times specified for a single trigger and creates a profile based on the last imaging result.

[Multi emission (synthesis)] (3)

Images more than once with different conditions and combines only profiles of areas with optimum intensity acquired from each imaging to create a more stable profile. Workpieces with larger intensity differences can be detected by increasing the emission times.

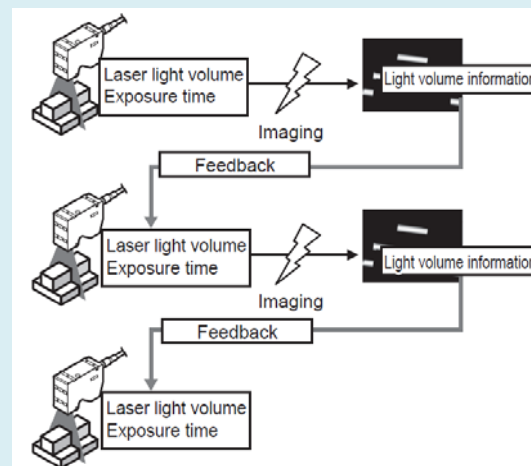
■ Image mask

Mask on the imaging window for creating profiles while ignoring stray light such as ambient light and multi-reflected light.

* An image mask area does not trace misaligned workpieces.

Use the "position correction" or "profile mask" function to allow a mask area to trace workpiece misalignment.

2



3

