

Eye Detection

PRODUCT INSIGHTS

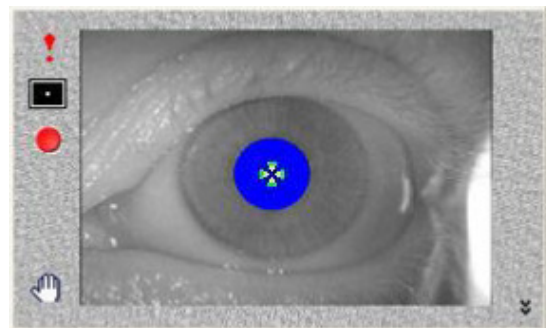
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This document offers an in-depth guide on executing the eye detection and centering process with the NYSTALYZE system, a foundational procedure essential for achieving accurate diagnostic results. Renowned for its versatility, the NYSTALYZE system provides both wireless and wired mask options, accommodating the varied requirements and preferences of users. Operating in tandem with the SYNAPSYS VNG Module, available in both its basic and plus versions, NYSTALYZE streamlines the entire eye detection and calibration process, making it both efficient and effective.

DETECTION

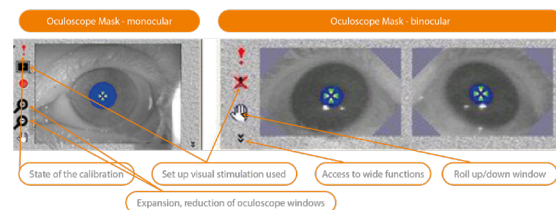
The “Oculoscope” window allows the eye detection and centring but also the eye visualisation mode in zoom and the mode selection of the eye calibration.

OCULOSCOPE WINDOW



Eye Display Window Oculoscope

The “Oculoscope” window can display in two diverse ways depending on the mask used with NYSTALYZE system (mask mono ocular or mask binocular).






In the case of binocular masks, the window contains two images of the eye. The right eye is displayed on the left, the left eye on the right, as if looking at the patient.

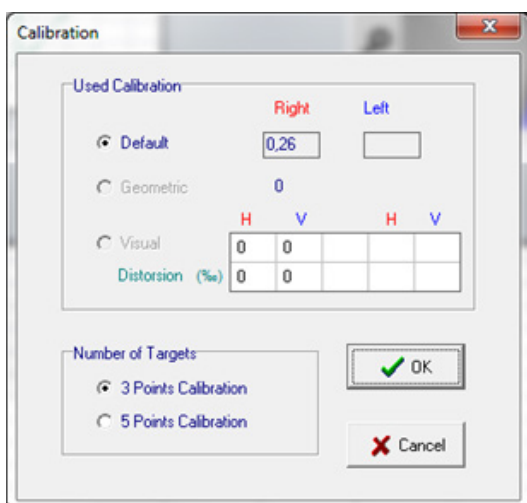
The blue area represents the pupil detected, and the cross indicates the centre.

STATE OF CALIBRATION

Calibration in progress can take the following three states:

-  Default statistical calibration mode
-  Geometric calibration mode
-  Visual calibration mode

CALIBRATION VALUE WINDOW

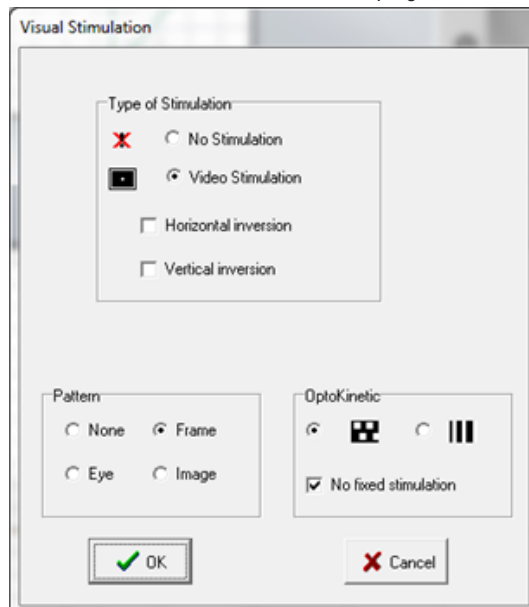


The different option of “used calibration” allows the user to change the mode of calibration of the eye movement. By this way, it is possible to move back to a calibration by default if the user wants to stop the current test or to start a new visual acquisition with NYSTALYZE system.

The frame “Number of targets” indicates the number of points/marks that will be displayed during the calibration session. A VNS mask can be calibrated with 3 targets, on the other hand a VISIO mask needs at least 5 targets for a calibration with both horizontal and vertical movements.

SET UP/PARAMETERS OF THE VISUAL STIMULATION

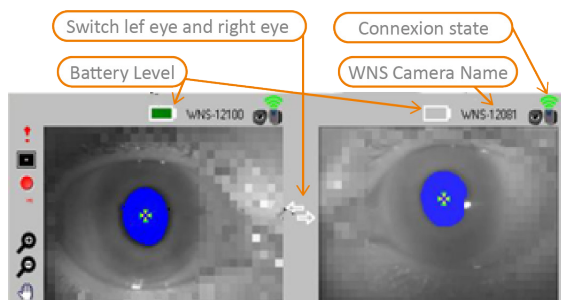
By clicking on the button related to the visual stimulation used the window below displays:



- «Type of Stimulation»: select of a visual stimulation to use.
 - «Horizontal Inversion» and «Vertical Inversion»: allows to reverse the target direction. This can be used when a projector is fixed upside down on the ceiling.
 - «Pattern »: change of pattern projected on the stimulation screen.
 - « None »: no image displayed in the video screen.
 - « Frame »: projection of the frame.
 - « Image »: projection of the image video.
 - « Eye »: projection of the image video filmed by the camera of the masks.
- The option “Optokinetic” allows you to select the type of pattern for the visual stimulation in “Optokinetic” mode.
 - The option “No stimulus” enables no pattern to

be displayed on the screen at zero speed.

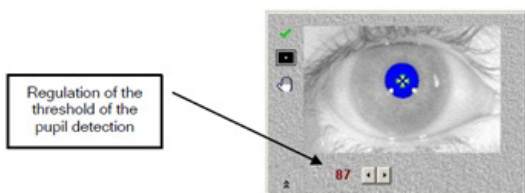
ICONS DEDICATED TO WNS GOGGLES



WIDE FUNCTIONS

By clicking on the double arrow of the wide functions, the Oculoscope size increases and the value adjustment of the threshold for the detection of the pupil display. This threshold can be regulated by using the arrows of the right value.

The wide functions disappear by clicking a second time in the double arrow.



EYE DETECTION AND CENTRING

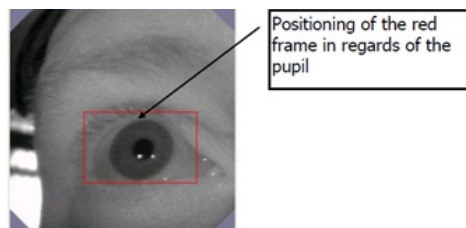
The operation of detection and centring of the eye is fundamental for the quality of all the VNG tests performed with NYSTALYZE system. It is therefore particularly important to bring a maximum of care, especially with the filmed eye: avoid a little opened eye, too much makeup...

The simply way consists in opening the Oculoscope once or several times in order to force the detection and the automatic centring of the eye. A well-done detection shall give a picture like the one above.

In the case of a mask VISIO or if the detection is not satisfactory, it is necessary to carry out a manual detection in three stages:

- Click on the eye with the right button of the mouse. The full picture of the camera displays.

- Click on the centre of the pupil with the left button of the mouse. The red frame redefines on the eye.

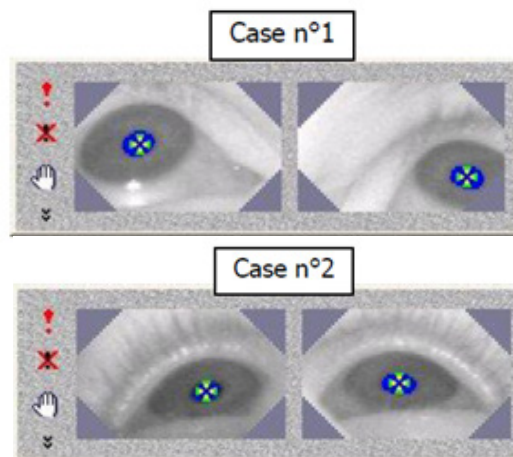


- Click on the picture with the right button of the mouse. The full picture disappears and the Oculoscope displays.

In case of persistent difficulty (make up, etc, ...), it is still possible to refine the detection by exploiting the adjustment of the threshold of the pupil detection.

For a perfect detection, the cross must follow the pupil in all directions of the glance.

EXAMPLE OF INCORRECT DETECTION



First case: The angle of vision of the mask Visio is correct but the images are not centred.

Second case: The angle of vision of the mask Visio is incorrect; the camera is not positioned in front of the eyes (or closes enough of the horizontal).



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