INTERZEAG INTERNATIONAL

Precision by Tradition

OCTOPUS 1-2-3

Instruction Manual

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1 INTRODUCTION

The OCTOPUS 1-2-3 is a direct projection perimeter to examine the central 30° visual field. For data storage, display and analysis we recommend to use the (optional) PERITREND software.

Your local OCTOPUS distributor who is also responsible for instructing the operating staff will install the OCTOPUS 1-2-3.
Technical specifications subject to change without notice.

1.1 Safety Tips

Pay attention to the special messages in this manual to avoid any risks to the patient.

CAUTION:	These instructions must be followed to avoid risk to the patient and/or the operator.
ATTENTION:	These instructions must be followed to prevent damage to the perimeter.
NOTE:	Hints for guaranteeing error-free functioning of the perimeter.

ATTENTION:	The fuse must correspond to the setting of the voltage selector. See further data in chapter 5.2.
ATTENTION	The ON/OFF switch does not fully disconnect the perimeter from the power lines.
CAUTION:	Arrange the power cords and connecting cable in such a way that they do not present any danger.
ATTENTION:	Components of OCTOPUS 1-2-3 have to be replaced by original INTERZEAG components.
NOTE:	INTERZEAG is not responsible for damages occurred from the interpretation of examination data. Especially the interpretation of the 'Descriptive Report' is in the responsibility of the eyecare physician.

1.2 Working with the OCTOPUS 1-2-3

The perimeter is controlled by using the keys on a keypad (Figure 1-1) following the indications on the screen.

Figure 1-1

The screen is usually divided into two sections by a horizontal line (B) in Figure 1-2. The upper part (A) contains the menu bar. Main sections are defined below:

- Auto: Automatic screening test (STX)
- Code: Section 2.1
- Manual: Section 2.2
- Prepare: Enter patient data
- Options: Section 1.3
- Process: Chapter 3

When one of these commands is highlighted and the OK key is pressed, the unit carries either this function out, or it activates a submenu.

With the ESC key the menu returns to the next higher level.

The lower half of the screen (C) contains either an information or an entry window. If you see -OK- on the dividing line (B), the text in the lower half of the screen (C) is purely informative like on the main screen.

A
B
C

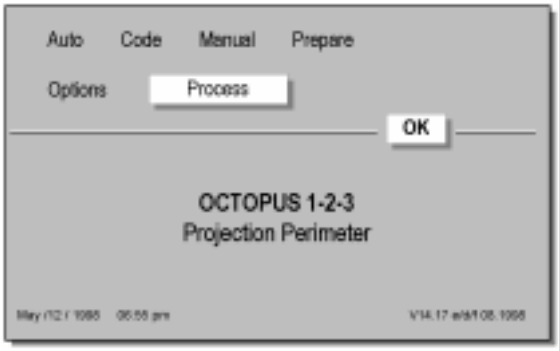

Figure 1-2

Two vertical arrows - ↓↑ - on the dividing line (B), such as in Figure 1-3, indicate that an entry or a selection can be made as follows:

➢ Use the ⇆ keys to highlight your choice in the menu bar (A) and press .

➢ Use the vertical arrows ↓↑ to move to the (C) area of the screen.

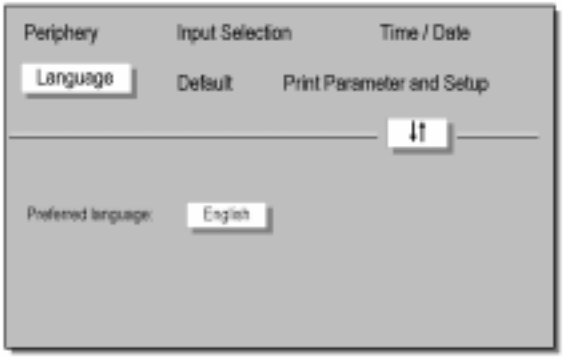

Figure 1-3

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1.3 Configuration of Parameters

➢ Use the keys to highlight 'Options' and press OK.

➢ With the keys highlight 'Install' and press OK.

1.3.1 Periphery

➢ Delete with confirmation: Leave 'YES' to have a confirmation question before old examinations are deleted.

➢ Buzzer: Select ON or OFF.

➢ Printer: Select printer type.

➢ COM1/COM2: For connection with PERITREND on PC select 'Transmission' on COM1, none on COM2.

1.3.2 Input Selection

➢ Set the perimeter to the preferred examination strategy such as 'Normal', 'Dynamic' or 'TOP'.

➢ If the transmission function is not activated, the patient data input can either be done by typing the patient's age (quick and easy) or the complete date of birth.

➢ To obtain a 'Descriptive Report' chose 'Yes'. This feature is only active after a complete G1X examination (one phase) is made.

1.3.3 Time / Date

➢ Adjust to the present time and date in either US or International mode.

IMPORTANT: The actual date is important to calculate the patient's age from the date of birth.

1.3.4 Language

➢ Continue with the keys to highlight 'Language'.

➢ Press key to move down to 'Preferred language'.

➢ Use the keys to select the language.

➢ Press OK to confirm.

➢ Press ESC (twice) to return to the main screen.

NOTE: There is a choice of six languages depending on the software version as displayed in (Figure 1-2).

1.3.5 Default

➢ To reset all parameters to standard settings.

1.3.6 Print Parameters and Setup

NOTE: We recommend to make a printout of the actual instrument settings.

1.4 Examination Programs

The perimetry software includes three standard programs and ten custom test programs.

G1X Glaucoma examination (59 locations)

M2X Macula examination (45 / 81 locations)

STX Screening test (59 locations)

32X Normal examination (76 locations)

1.5 Examination Strategies

Five different examination strategies are available to be used in certain combinations with the examination programs.

- Normal strategy (quantitative)
- Dynamic strategy (quantitative)
- Low Vision strategy (quantitative)
- 2-Level strategy (qualitative)
- TOP / Tendency Oriented Perimetry (quantitative) (option for G1X, M2X, 32X)

The results of a qualitative examination can be quantified in a succeeding phase using the normal or dynamic strategies.

1.6 Stages and Phases

Stages and phases are defined in order to quickly gain information about the visual field in priority steps. The examination can be interrupted at the end of a stage or phase and then continued at a later time.

Consult the OCTOPUS Visual Field Digest for further details.

1.7 Procedure Codes

A single code number can be set for a complete examination procedure (saving and printing included) (Figure 1-4). This code is then used routinely to get quickly into the examination.

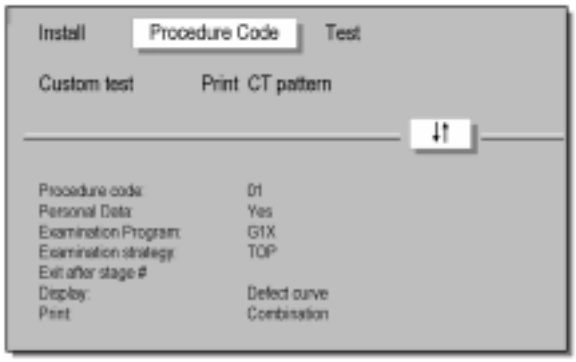

Figure 1-4

2 THE EXAMINATION

After switching ON, the perimeter asks for calibration (first screen). Normally the ocular cap is sufficient to darken the room .

The second screen should be answered depending on the state of the buffer.

From the main screen (Figure 1-2) there are two ways to start an examination.

2.1 Examinations Using a Procedure Code

It is good practice to use a Procedure Code (see 1.7):

➢ In the menu, highlight 'Code' and press OK.

➢ Enter the code number and press OK (twice).

2.2 Manual Operation

In 'Manual' all selections can be made as follows:

➢ In the menu, highlight 'Manual' and press OK.

The selection of the L/R eye is established automatically with the position of the perimeter.

Using the ↑↓ and → keys select the examination program, test strategy and fixation target. Press OK.

2.3 Enter Patient Data

There is the choice (Figure 2-1) of entering new patient data, test the same patient (other eye) or to take the patient data from the buffer memory (see section 3).

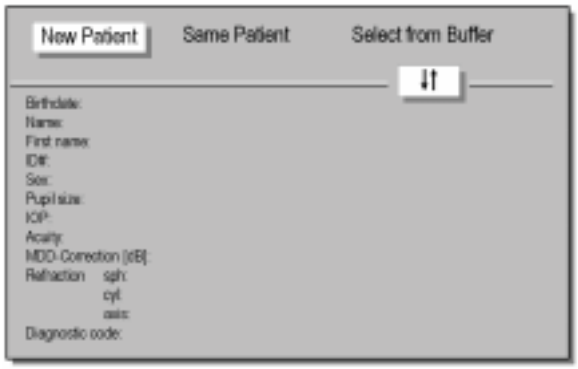

Figure 2-1

➢ It is mandatory to type in the date of birth (or age, see 1.3).

➢ It is recommended to also enter the ID number, and

➢ Sex by using the ↑↓ and → keys.

➢ The other information is optional.

NOTE:	It is important to measure and enter the pupil size during the examination (2.5.1).

2.4 Position the Patient

Position the patient straight up but comfortably on the chair. Apply the eye occluder and hand the patient the patient button.

CAUTION:	Only the answer buttons produced by INTERZEAG should be connected to the perimeter.

2.4.1 Instruct the Patient

To obtain reliable examination results, instruct the patient in all detail about the examination procedure.
In particular inform the patient

- to maintain fixation and to blink regularly to avoid dry eyes;
- to press the button only when a stimulus is thought to be seen;
- not to worry because the bracketing procedure is characterized by the fact that approximately half of the stimuli can not be seen;

Tell the patient how long test is going to take.

NOTE:	The patient can always stop the procedure by closing the eye or by keeping the response button pressed.

2.4.2 Setting the Trial Lens(es)

The lens holder has 10° marks as shown (Figure 2-2) for aligning the cylindrical lens axis correctly.

NOTE:	The patient is corrected with her/his far correction. No correction is needed for presbyopic eyes.

Use only small rim correction lenses!

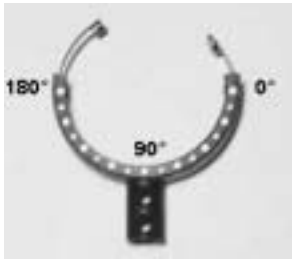

Figure 2-2

2.5 Monitoring the Examination

After the patient has been positioned, the examination menu (Figure 2-3) shows the eye and other test data.

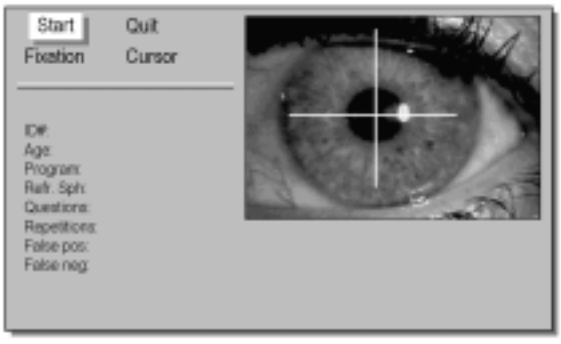

Figure 2-3

➢ Make sure the patient is centered correctly.

➢ Press OK for Start.

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During the test, the menu has changed in (Figure 2-4):

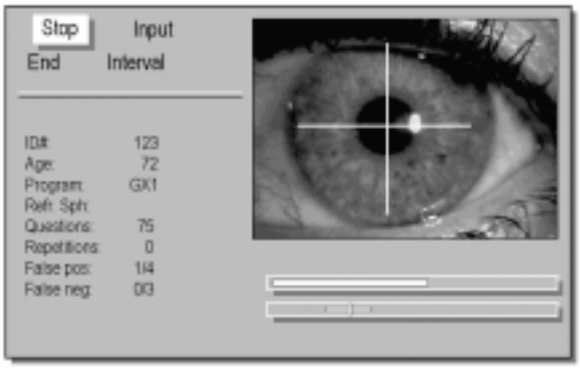

Figure 2-4

IMPORTANT: The operator should not leave the patient unattended, especially when the patient is new to this type of examination.

NOTE: Restart the examination when the patient obviously has not yet understood the procedure.

The following is part of the routine during the examination:

2.5.1 Pupil Diameter

The ruler on the monitor allows a quick measurement of the pupil size (scale in mm).

- ➢ Highlight 'Input'. Press OK.
- ➢ Enter the pupil size in the patient data. The eye fixation control remains active even if the eye is not shown.

2.5.2 Stimulus Interval

The stimulus interval is adapted to the reaction time of the patient. If the patient finds the speed too fast,

- ➢ Highlight 'Interval'. Press OK.

The speed will now be constant and slow. 'Interval*' is marked to signal the operator that the speed is fixed.

2.5.3 Eye Fixation

Behind the screen the pupil position is controlled by an 'invisible' measuring cursor. If the pupil size is smaller than 2 mm or larger than 6 mm:

- ➢ Press OK to 'Stop'.
- ➢ Highlight 'Cursor' and press OK.
- ➢ Adjust eye fixation control from 'normal' to the respective value 'small' or 'large'. Press OK.
- ➢ In case the pupil size is very narrow or when the patient can not fixate at all, switch the eye fixation control to 'no control'. Press OK.
- ➢ Press ESC to return.

2.5.4 Fixation Brightness

Sometimes the patient can not fixate well because the fixation mark is too dim or to bright.

- ➢ Press OK to 'Stop'.
- ➢ Highlight 'Fixation' and press OK.
- ➢ Using the keys switch to brighter (dimmer for reverse action) and increase the intensity by pressing OK several times.
- ➢ Press ESC to return.

NOTE: It is not recommended to change the brightness too much to avoid blinding and contrast effects.

2.5.5 End

OCTOPUS examinations are run in stages. If the operator wishes to stop the test at the end of a stage:

- ➢ Highlight 'End' and press OK.

'End*' is now marked and the procedure will stop automatically after the end of the stage.

At this point, the Examination can be continued or saved.

2.6 On-screen Information

Questions: The number of stimuli (including repetitions) that have been presented.

Repetitions: The number of stimuli that have been repeated. Stimuli are repeated when the patient closes the eye or reacts within 100 ms after the stimulus is displayed.

False pos.: The total number and the number of falsely answered positive catch trials.

False neg.: The total number and the number of falsely answered negative catch trials.

Elapsed time: Elapsed examination time. Time that elapses during an interruption is omitted.

NOTE: With the key, the intermediate values in dB and the indices MD, LV will be displayed.

Progress indicator: This bar graph shows the progress of the examination.

Defect level indicator: The depth of the visual field defect and the variance of the results obtained thus far are shown by a vertical and a horizontal bar.

3 DATA MANAGEMENT AND EVALUATION

3.1 Data Management

Examination results are saved and stored in the examination buffer (Figure 3-1) in chronological order.

In the main menu:

➢ Highlight 'Process' and press OK.

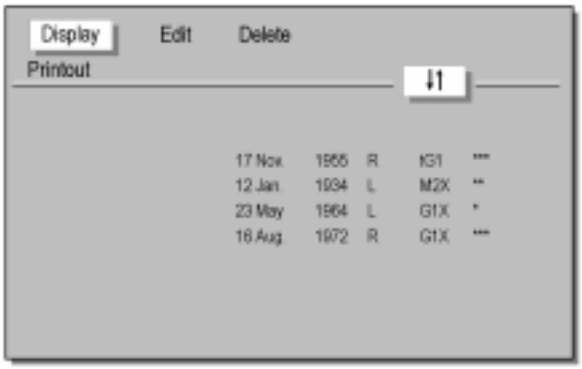

Figure 3-1

This menu also appears if you choose 'Select from Buffer' in Manual or Code mode (see 2.2).

The different examination tags indicate:

*	Prepared patient data /examination
**	Interrupted test, can be continued
***	Finished examination
****	Finished and printed examination

3.1.1 Display

The visual fields can be displayed on the monitor in several formats.

3.1.2 Edit

In case patient data needs to be amended or changed this menu opens the file to allow making the corrections.

3.1.3 Delete

This menu allows deletion of selected examinations. In particular this is important when the buffer is full (maximum 15 examinations). Examinations, which have been printed out, are normally deleted first.

3.1.4 Printout

➢ Highlight 'Printout' and use keys to select a particular examination.

➢ Press OK.

➢ Choose a printout format with keys.

The printout menu has following options:

- Seven-in-One
- Combination
- Comparison
- Value table
- Defect curve
- Descriptive report
- Grayscale
- Profiles
- CO-Grayscale

3.2 Printer Connections

The OCTOPUS connects through the parallel printer port to almost any modern laser or inkjet type printer.

➢ Under 'Options' - 'Install' - 'Periphery' use the keys to highlight the Printer selections.

➢ With the keys select the proper or most appropriate printer model and press OK.

NOTE:	Call your printer supplier for assistance if the dip switches on the printer itself need adjustments.

3.3 Data Transmission

Please call your OCTOPUS distributor for assistance to connect the OCTOPUS 1-2-3 to a PC with PeriTrend under Windows.

Refer to the special PeriTrend manual for instructions on the data import functions.

3.3.1 Cable Connections

A standard (female-female type) serial interconnecting cable connects the OCTOPUS 1-2-3 serial output port COM1 (nearest to the printer port) with the serial import port (mostly also COM1) on the PC.

3.3.2 Data Transmission

➢ Under 'Options' - 'Install' - 'Periphery' use the keys to highlight the COM1 port. With the keys select 'Transmission', press OK and twice ESC.

➢ Under 'Process' highlight 'Transmission'. Select an examination by the keys and press OK. Press twice ESC to return.

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4 CARE AND MAINTENANCE

There are a few simple steps, which will maintain your OCTOPUS 1-2-3 in good condition for many years.

4.1 Protecting the Unit from Dust

Dust is the most common cause for malfunctioning. The OCTOPUS 1-2-3 is supplied with a dust cover which should be used whenever the unit is not being used.

4.2 Cleaning

Normally, it is sufficient to dry clean the unit occasionally with a soft cloth.

NOTE:	Under no circumstances should the unit be cleaned with a wet cloth.

4.2.1 Cleaning the Ocular Lens and the Monitor Screen

When the ocular lens and the headrest need cleaning, it is recommended to use a damp chamois leather wetted with alcohol if necessary.

4.3 Moving the Perimeter

If the OCTOPUS 1-2-3 needs to be transported to another location, pay attention to the following:

- ➢ Ensure that all cables have been removed from the plug panel.
- ➢ Adjust the height of the cross support to the lowest position. This will be necessary if the unit is transported in its original packaging.
- ➢ Always ensure that the cross support is firmly secured by fixing the two screws.

4.4 Chin Rest Paper

These products are recommended for the chin rest:

Chin rest paper	9.0370.9040	INTERZEAG
Chin rest paper	950-1379	HAAG-STREIT

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5 TECHNICAL DATA

5.1 Manufacturer

INTERZEAG AG
Rietbachstrasse 5; CH-8952 Schlieren / Switzerland.

5.2 Instrument

Designation:	OCTOPUS 1-2-3	
Power requirements:	115V~/ 50/60Hz, 230V~/ 50/60Hz	
Power consumption:	80VA	
Fuses: 115V~/ 50/60Hz:	T1A/250V (high braking)	
230V~/ 50/60Hz:	T2A/250V (high braking)	
Measurements (W x L x H):	400 x 420 x 550/580mm	
Footprint:	0.156m^2 (390 x 400mm)	
Weight:	25.5kg	
Shipping size:	660 x 570 x 620 mm	
Shipping weight:	33.5kg	
Temperature:	Operation:	+15°C ... +40°C
	Storage:	-20°C ... +50°C
Humidity:	Operation:	20% ... 75%
	Storage:	10% ... 90%
Operation principle:	Direct projection system	
Positioning accuracy	±0.25°	
Measurement principle:	Bracketing procedure	
Measurement range:	0 ... 40dB	
Measurement accuracy:	1dB	
Max. stimulus intensity:	1273cd/m^2 (4000asb)	
Stimulus colour:	yellow, 592±2nm	
Stimulus size:	Goldmann III, Goldmann V	
Stimulus duration:	100ms, 200ms, 500ms	
Stimulus interval:	Fixed 3 sec, adaptive	
Background intensity (I):	31.4asb, (10cd/m^2)	
Background colour (I):	White (colour temp. 2854K)	

Safety regulations

The perimeter complies with the EN 60601-1, safety class B instrument.

5.3 EMC

The OCTOPUS Perimeter 101 complies with the requirements of the 89/336/EEC directive for 'Electromagnetic Compatibility'. The instrument is designed and manufactured in a way that generation and emission of electromagnetic parasitic signals is limited to levels that other appliances are not influenced in their specified functions. Adequate inherent consistency against externally interfering electromagnetic signals is provided.

5.4 Designations

Safety Class B instrument, international safety code of protection against electrical shock hazard.

Swiss safety mark

OFF Power supply to the OCTOPUS 101 is interrupted.

ON Power supply to the OCTOPUS 101 is connected.

Electrical fuse

Protective ground lead connection

Ground

Technical specifications subject to change without notice.

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6 CERTIFICATIONS AND CE MARKING

QM System in accordance with: SN EN ISO 9001 and EN 46001

Certified by: Bureau Veritas Quality International

This product is in conformity with the following directives and standards:

Directives

- 93/42/EWG Medical Devices
- 89/336/EWG Electromagnetic Compatibility (EMC)

Standards

- EN 60601-1: 1990
- EN 60601-1/A1: 1993
- EN 60601-1/A2: 1995
- EN 60601-1/A13: 1996
- EN 60601-1-2: 1993
- CISPR 11: 1990

CE Marking

CE

Safety regulations

The perimeter complies with the EN 60601-1, safety class B instrument.