



O-INSPECT tactile-optical-adjustment Manual

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1. General Information about the tactile-optical-adjustment (toA) for O-INSPECT

The tactile-optical adjustment will run in **Calypso 2021 (7.2.XXXX) or later**.

This program is for the adjustment of the camera/optic on an O-INSPECT to the tactile sensor (XXT).

In this revision you have the possibility to adjust only those magnifications, that you want to adjust.

But if you create a new camera/optic in Calypso, you have to run the first adjustment with **all magnifications!**

If you insert in CALYPSO a new optic, then you have to follow the following Procedure:

1. Run the tactile optical adjustment with all magnifications
2. Qualify camera on the glass
3. Run the tactile optical adjustment with all magnifications

One run of the toA takes approximately **8 min** on an O-Inspect with a standard optic.



2. Preconditions and preparation of the CMM

The following prerequisite must be met:

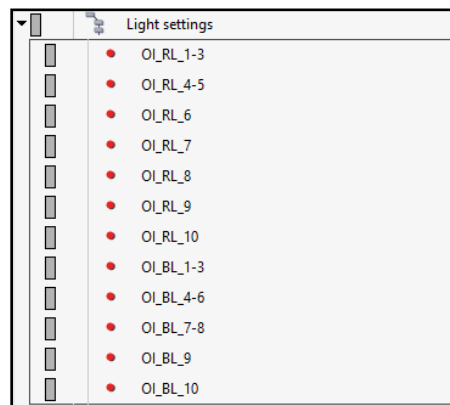
- CALYPSO 2021 (7.2.XXXX or newer)
- Master Probe or the probe you want to use should have been calibrated before.
- Place the ring gauge on the CMM
 - o take care that you can reach the ring gauge with the XXT and the camera/optic
 - o make sure that you can measure the circle/bore of the ring gauge with backlight.
- open CALYPSO and load the actual measurement plan

3. Settings in the measurement plan

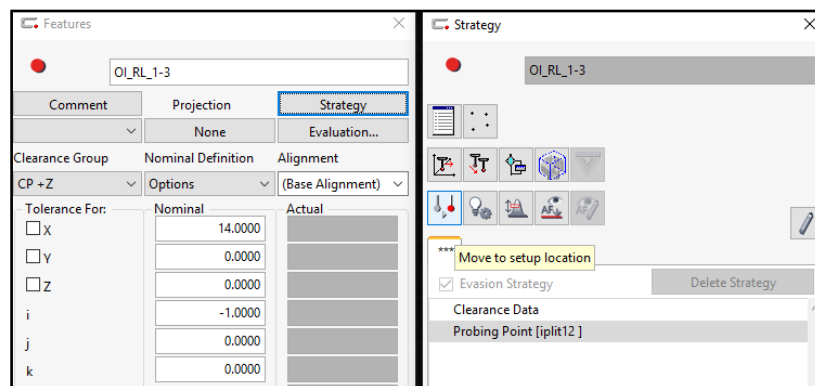
3.1. Set light settings

The light settings are on every O-Inspect different. That's way you have to adjust it or check it once in the first run of the toA on an O-Inspect. Therefore, follow the following instruction.

1. Perform a manual alignment (see 4.3 *Manual alignment*).
2. Open in features the group "Light settings"



3. Open feature "OI_RL_1_1-3" → "Strategy" → Icon "Move to setup location"



4. Adjust the light setting so, that you have a grey value about 150 and save this setting.
5. If necessary, do this in "OI_BL_1-3" for the back light setting again.
6. Repeat this with all light settings

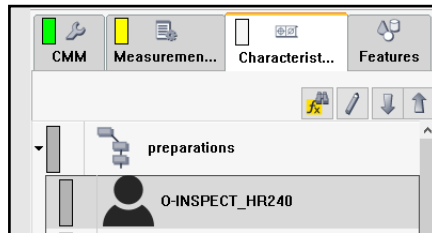
3.2. Optic type setting in measurement plan

First, it must be set in the measurement plan which optics are installed in the O-Inspect.

To do this, the first characteristic in the group "preparations" must be renamed.

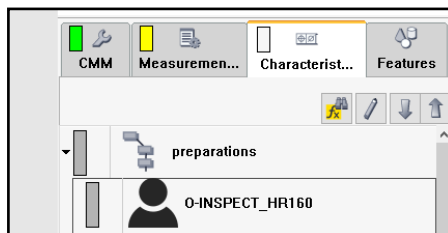
Choose the respective case:

- O-INSPECT_scout240



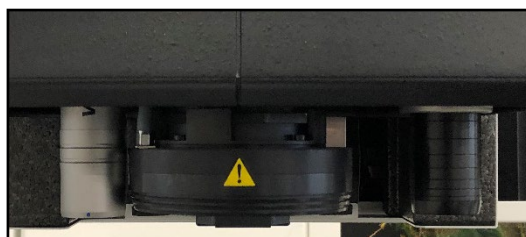
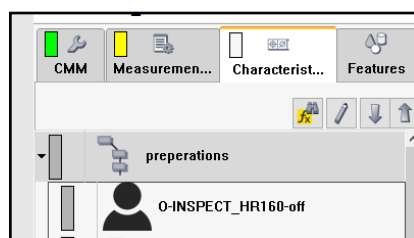
! Pay attention of the right spelling!

- O-INSPECT_scout 160



! Pay attention of the right spelling!

- O-INSPECT standard



If the characteristic is **not** renamed to "O-INSPECT_scout160" or "O-INSPECT_scout240", then the settings of the standard optic gets used.

Example: "O-INSPECT_scout160-off" → a standard optic is mounted

ATTENTION:

The first characteristic in the measurement plan must be the setting of the Optic type!

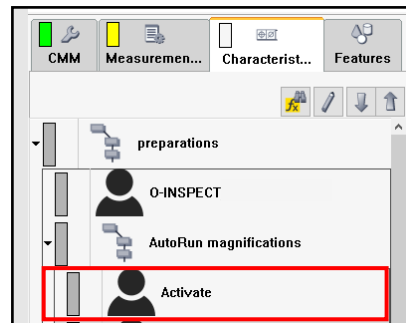
3.3. Set auto-run mode or manual mode

With this measurement plan you have the possibility to run it in the auto-run environment (auto-run mode) or in the standard environment of CALYPSO (manual mode).

Therefore, rename the first characteristic in group "AutoRun magnifications"

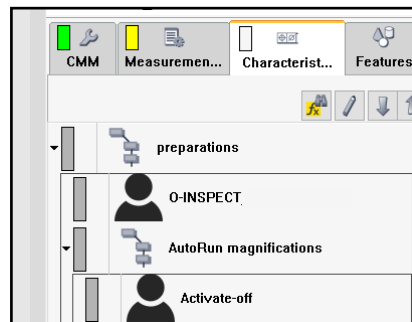
Info: The difference between manual mode and auto-run mode is only dialog at the beginning. The measurement is the same. If you don't want you execute the selection window as shown in capture 4.2 *CNC-run with manual mode*, you can run the program in auto-run mode.

- Rename the characteristic to "**Activate**" then the auto-run mode is active (as shown in the following picture)



! Pay attention of the right spelling!

- If the characteristic is **not** named to "**Activate**", then the manual mode is active (as shown in the following picture)



4. Start CNC-run

4.1. CNC-run with auto-run mode

1. Go through the chapter 3. and prepare the measurement plan
2. Open the group "preperations" and the group "AutoRun magnifications".
3. Choose the magnification you want to adjust in auto-run mode.

Each characteristic represents one magnification of the optic. The characteristic named "1" represent the smallest magnification of the optic (on a standard optic is this the probe 0,50x).

probe number	optic		
	standard	scout 160	scout 240
1	0,50x	0,8x	1,2x
2	0,56x	0,9x	1,35x
3	0,65x	1,04x	1,56x
4	0,76x	1,22x	1,83x
5	0,93x	1,48x	2,21x
6	1,18x	1,87x	2,81x
7	1,61x	2,56x	3,84x
8	2,14x	3,4x	5,11x
9	3,20x	5,08x	7,62x
10	6,30x	10,0x	15,0x

You can find this table in the measurement plan under **RUN → User Information**

Choose the magnification you want to adjust in auto-run mode. Therefore, put characteristics in the order you want, between the characteristic "Activate" and "End" (drag and drop). The program has also a sorting function. The adjustment will automatically start from the smallest to the highest magnification.

CAUTION:

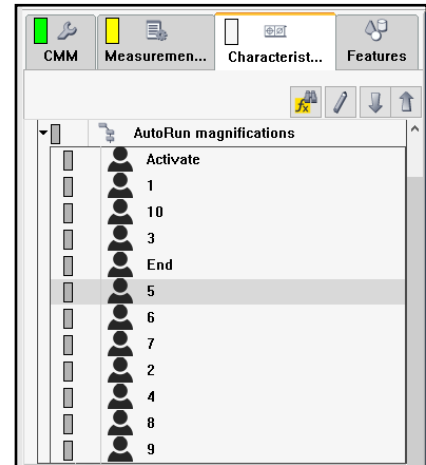
You have to have this order:

1. Group *preperations* have to be the first element in the characteristic list
2. The first characteristic in group *preperations* have to be the result element named *O-INSPECT*
3. Group *AutoRun magnifications*
4. First element in group *AutoRun magnifications* have to be the result element named *Activate* or *Activate-off*
5. All magnifications you want to adjust
6. Characteristic named *End*

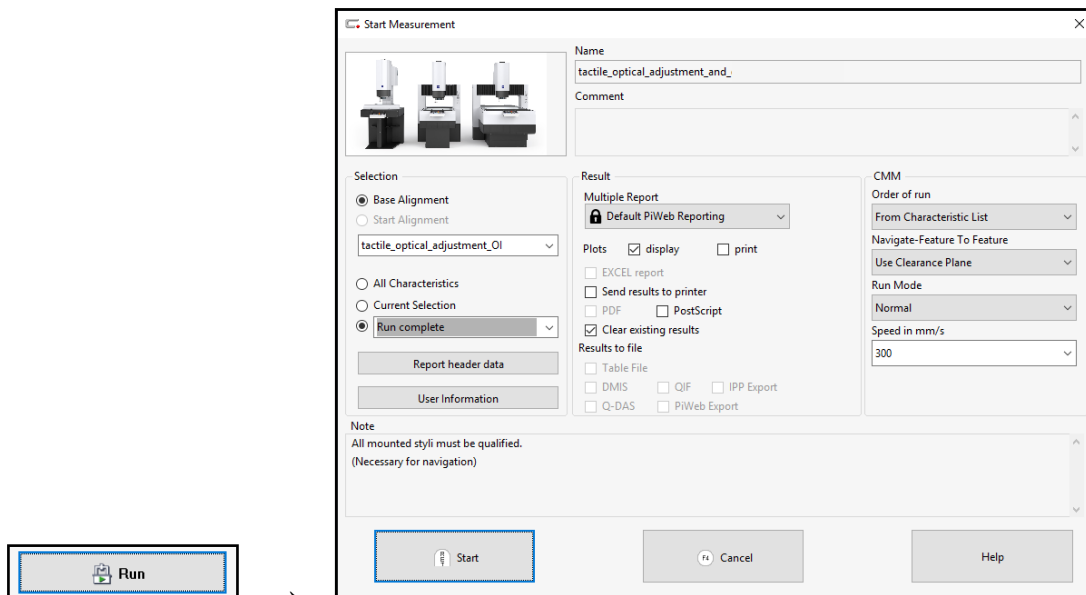
Example:

In this case you have a standard optic and adjust the magnification 0,50x; 0,65x and 6,3x in this order.

If you create a new camera/optic in Calypso, you have to run the first adjustment with all magnifications!



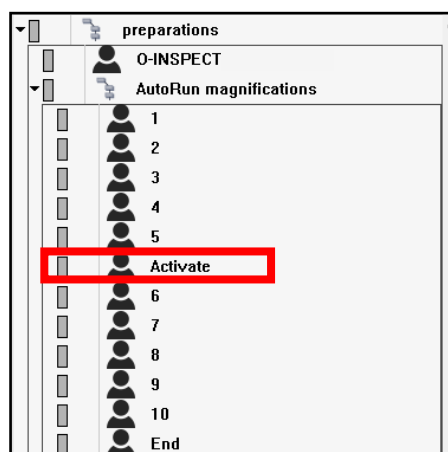
- Start the run via "Run" → "Start"



- Continue with the manual alignment in capture 4.3 *Manual alignment*

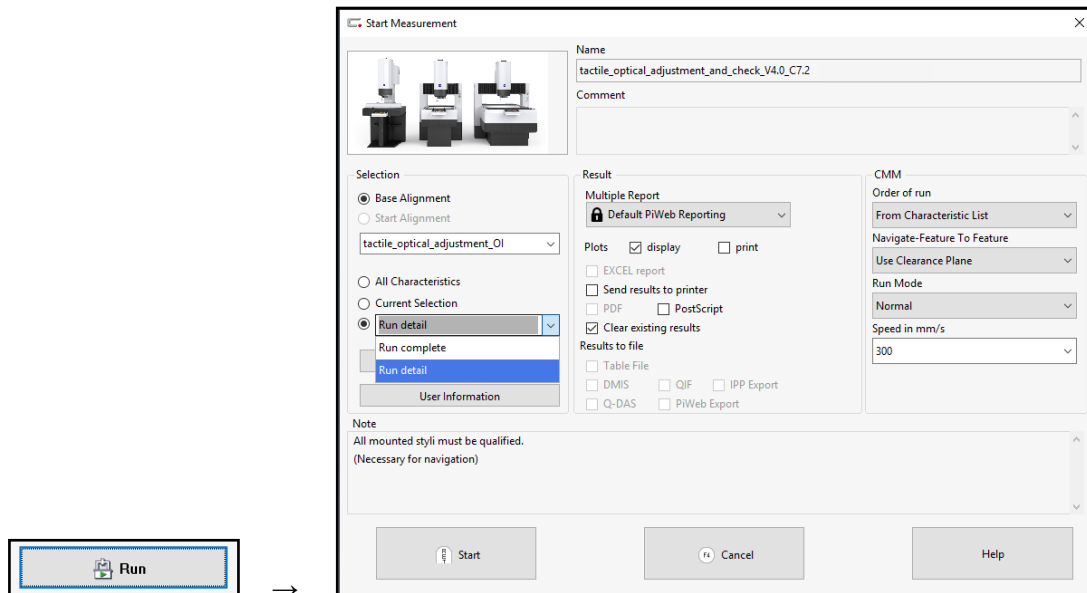
CAUTION:

This will **not** work
wrong order!



4.2. CNC-run with manual mode

1. Go through the chapter 3. and prepare the measurement plan
2. Go to "Run" → "Start"

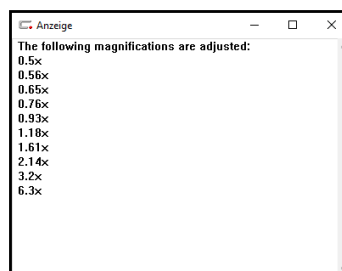


3. Selection of run „Run complete“ or „Run detail“

- Run complete:

All ten magnification of the zoom optic gets adjusted

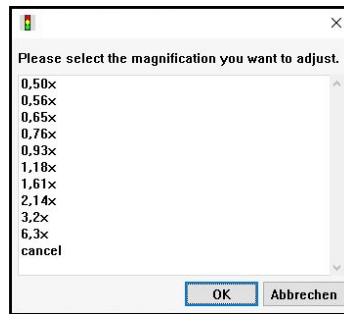
A new window will open as you see in the picture



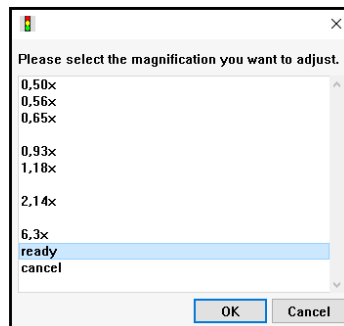
- Run detail:

Select the magnifications you want to adjust

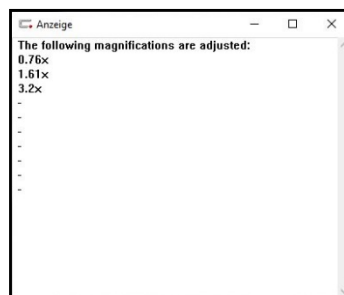
- a. A new window will open as you see in the picture



- b. "cancel" in the selection will end the run
- c. Choose the magnifications you want to adjust. The window will open again, and the selected magnification is hidden.



- d. Finish the selection by pressing "ready"
- e. This window will close, and a message opened. In this window you see the selected magnifications.

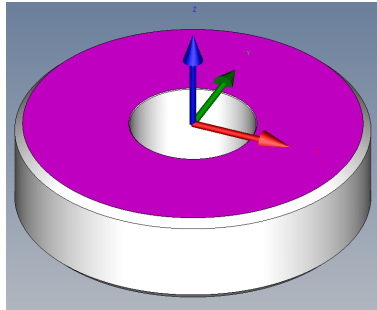


- f. By pressing "ok" the run will start with the manual alignment and subsequently the adjustment starts in the shown order.

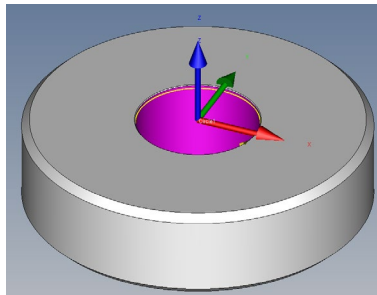
If you create a new camera/optic in Calypso, you have to run the first adjustment with all magnifications!

4.3. Manual alignment

1. Probe four points on the plane



2. Probe four points on the circle



3. After the manual probing, the base alignment will be measured automatically in CNC-mode and the adjustment will run automatically.



5. PiWeb Protocol

After the run you get a PiWeb protocol.

If a magnification is out of tolerance, start the measurement plan with those magnifications again.