



**ELDIM**  
ELECTRONICS FOR DISPLAYS AND IMAGING DEVICES

# Application Note: Wheel Problem Analysis

Abstract	This documents is an application note
Version	0.1
Status	Draft
Date	2021/01/05

## Revision history

Version	Date	Content
0.1	2021/01/05	Initial version

---

ELDIM  
1185 Rue d'Epron (Ancienne)  
14200 Hérouville Saint-Clair  
France

---

Copyright © 2021  
All rights reserved.  
Printed in France.

---

ELDIM, the ELDIM logo and other product names referenced herein are trademarks of ELDIM.  
Other product names, designations, logos, and symbols are trademarks or registered trademarks of their respective owners.

---

NO WARRANTY. The technical documentation is being delivered to you AS-IS and ELDIM makes no warranty as to its accuracy or use. Any use of the technical documentation or the information contained therein is at the risk of the user. Documentation may include technical or other inaccuracies or typographical errors. ELDIM reserves the right to make changes without prior notice.

---

ELDIM considers information included in this documentation as Confidential Information. The access and use of this confidential information are subject to the terms and conditions of the Software license agreement, with which you agree to comply.  
This documentation cannot be reproduced in any way without the prior agreement and written permission of ELDIM.

---

Table of contents

1 Introduction ..... 5

2 Mechanism ..... Erreur ! Signet non défini.

3 Measurement Area ..... Erreur ! Signet non défini.

    3.1 Parameter range ..... Erreur ! Signet non défini.

    3.2 Measurement Area Disabling ..... Erreur ! Signet non défini.

4 AutoExposure Usage ..... Erreur ! Signet non défini.

    4.1 Configuration of criteria ..... Erreur ! Signet non défini.

    4.2 MeasureAE ..... Erreur ! Signet non défini.

    4.3 CaptureSequence ..... Erreur ! Signet non défini.

# 1 Introduction

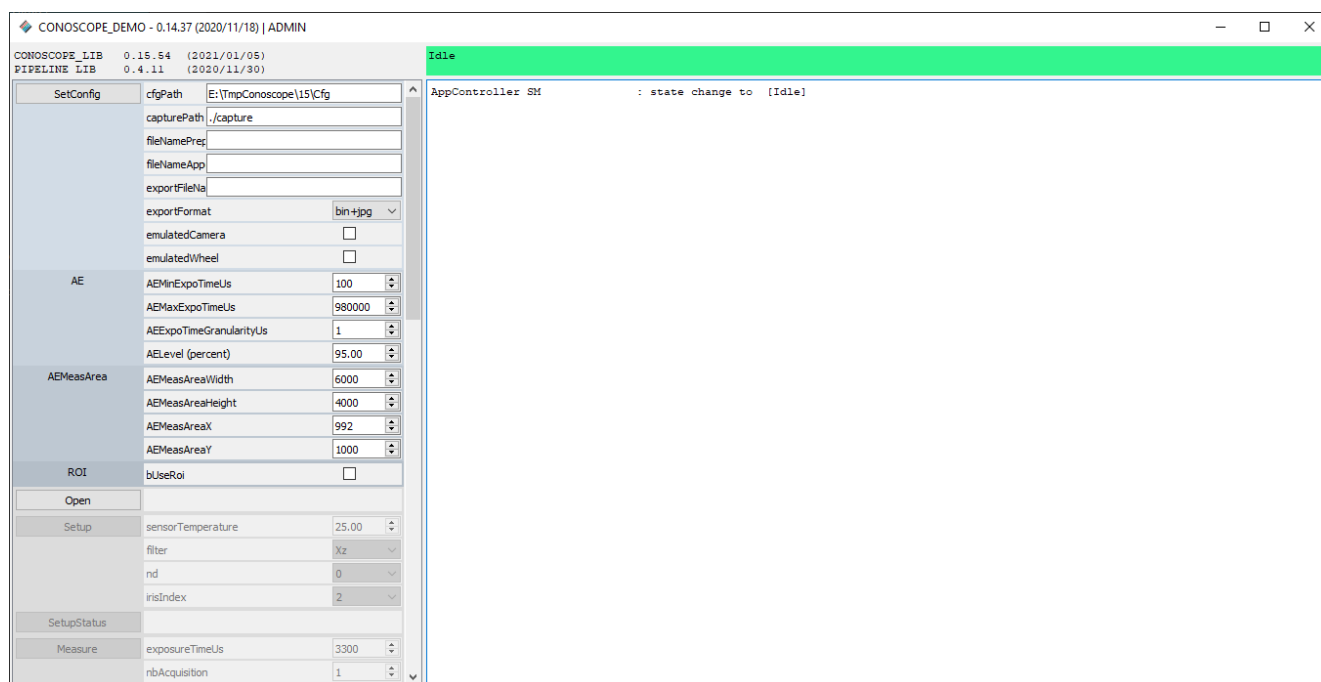
Steps to check the behavior of the Taprisiot.

Version to use :

Conoscope\_Demo      0.14.37  
Conoscope\_lib        0.15.54  
Pipeline\_lib          0.4.11

This lib has been modified to display some information

# 2 Application Start up



### 3 Taprisiot Reset

Perform a reset (Reset Button).

The operation may take some time and ends in Opened State.

CONOSCOPE\_DEMO - 0.14.37 (2020/11/18) | ADMIN

CONOSCOPE\_LIB 0.15.54 (2021/01/05)

PIPELINE\_LIB 0.4.11 (2020/11/30)

nd 0

irisIndex 2

SetupStatus

Measure exposureTimeUs 3300

rbAcquisition 1

bTestPattern

MeasureAE exposureTimeUs 3300

rbAcquisition 1

ExportRaw

ExportProcessed bBiasCompensation

bSensorDefectCorrection

bSensorPmuCorrection

bLinearisation

bFlatField

bAbsolute

Close

Reset

CaptureSequence sensorTemperature 25.00

waitForTemp

nd 2

irisIndex 2

autoExpo

useExpoFile

exposureTimeUs FilterX 10000

exposureTimeUs FilterXz 10000

Resetting

AppController SM : state change to [Idle]

AppController SM : process event [Reset] in state [Idle]

AppController SM : state change to [Resetting]

AppController : CmdReset Ok

CONOSCOPE\_DEMO - 0.14.37 (2020/11/18) | ADMIN

CONOSCOPE\_LIB 0.15.54 (2021/01/05)

PIPELINE\_LIB 0.4.11 (2020/11/30)

SetConfig cfgPath E:\TmpConoscope\15\Cfg

capturePath ./capture

fileNamePrep

fileNameApp

exportFileName

exportFormat bin+jpg

emulatedCamera

emulatedWheel

AE AEMinExpoTimeUs 100

AEMaxExpoTimeUs 980000

AEEspoTimeGranularityUs 1

AELevel (percent) 95.00

AE measArea AEMeasAreaWidth 6000

AEMeasAreaHeight 4000

AEMeasAreaX 992

AEMeasAreaY 1000

ROI bUseRoi

Open

Setup sensorTemperature 25.00

filter Xz

nd 0

irisIndex 2

SetupStatus

Measure exposureTimeUs 3300

rbAcquisition 1

Opened

AppController SM : state change to [Idle]

AppController SM : process event [Reset] in state [Idle]

AppController SM : state change to [Resetting]

AppController : CmdReset Ok

-> Ok

-> CfgPath E:\TmpConoscope\15\Cfg\20008162

-> TaktTimeMs 19730

Worker : done request [CmdReset] Ok

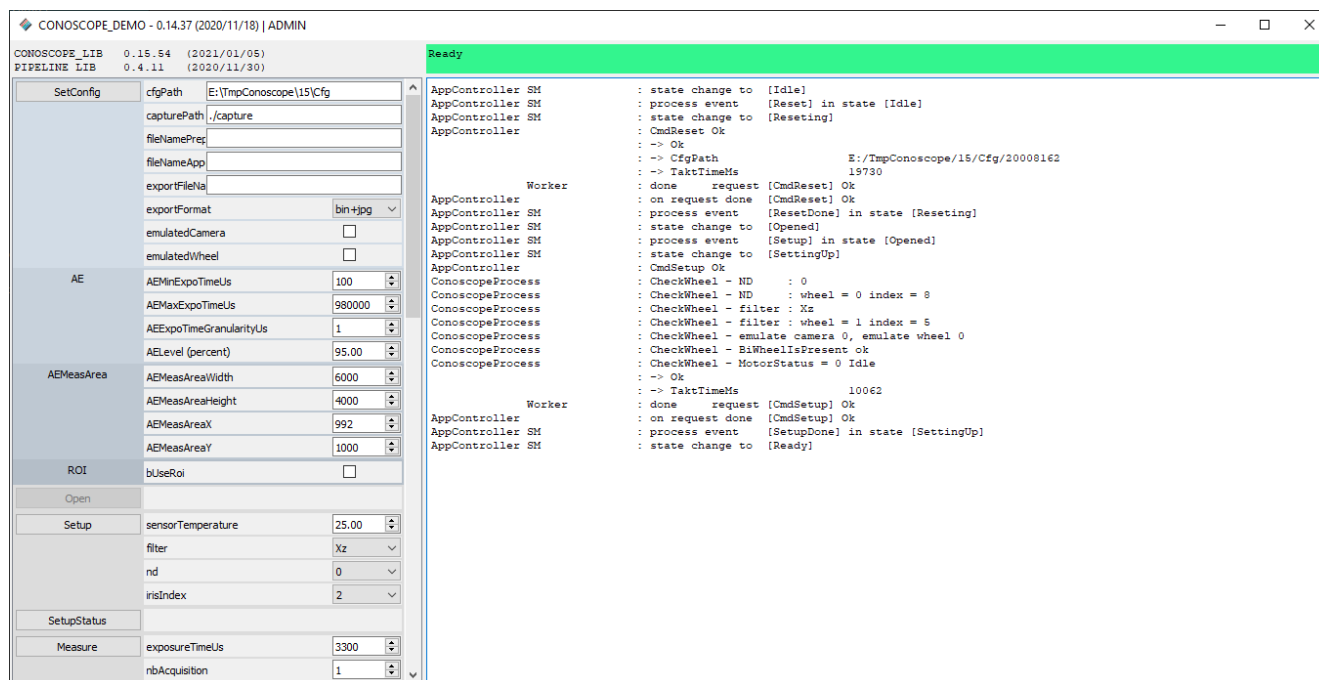
AppController : on request done [CmdReset] Ok

AppController SM : process event [ResetDone] in state [Resetting]

AppController SM : state change to [Opened]

## 4 Setup

Configure the Taprisiot with Filter: Xz and ND: 0



New trace are displayed:

```
ConoscopeProcess : CheckWheel - ND : 2
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 3
ConoscopeProcess : CheckWheel - filter : Ya
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0
ConoscopeProcess : CheckWheel - BiWheelIsPresent ok
ConoscopeProcess : CheckWheel - MotorStatus = 16 Success
```

CheckWheel - BiWheelIsPresent ok

Indicates that the communication with the motor is fine

CheckWheel - MotorStatus = 16 Success

Indicates that the motor is in the right state

## 5 Setup

Perform different setup configuration.

Filter: Ya and ND: 0

CONOSCOPE\_DEMO - 0.14.37 (2020/11/18) | ADMIN

CONOSCOPE\_LIB 0.15.54 (2021/01/05)  
PIPELINE\_LIB 0.4.11 (2020/11/30)

Ready

SetConfig

cfgPath E:\TmpConoscope\15\Cfg

capturePath ./capture

fileNamePrep

fileNameApp

exportFileName

exportFormat bin+jpg

emulatedCamera

emulatedWheel

AE

AEMinExpoTimeUs 100

AEMaxExpoTimeUs 980000

AEExpoTimeGranularityUs 1

AELevel (percent) 95.00

AE measArea

AE measAreaWidth 6000

AE measAreaHeight 4000

AE measAreaX 992

AE measAreaY 1000

ROI

bUseRoi

Open

Setup

sensorTemperature 25.00

filter Ya

nd 0

irisIndex 2

SetupStatus

Measure

exposureTimeUs 3300

nbAcquisition 1

AppController SM : state change to [Idle]  
AppController SM : process event [Reset] in state [Idle]  
AppController SM : state change to [Resetting]  
AppController : CmdReset Ok  
-> Ok  
-> CfgPath E:\TmpConoscope\15\Cfg\20008162  
-> TaktTimeMs 19730  
Worker : done request [CmdReset] Ok  
AppController : on request done [CmdReset] Ok  
AppController SM : process event [ResetDone] in state [Resetting]  
AppController SM : state change to [Opened]  
AppController SM : process event [Setup] in state [Opened]  
AppController SM : state change to [SettingUp]  
AppController : CmdSetup Ok  
ConoscopeProcess : CheckWheel - ND : 0  
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 8  
ConoscopeProcess : CheckWheel - filter : Xz  
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 5  
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0  
ConoscopeProcess : CheckWheel - BiWheelsPresent ok  
ConoscopeProcess : CheckWheel - MotorStatus = 0 Idle  
-> Ok  
-> TaktTimeMs 10062  
Worker : done request [CmdSetup] Ok  
AppController : on request done [CmdSetup] Ok  
AppController SM : process event [SetupDone] in state [SettingUp]  
AppController SM : state change to [Ready]  
AppController SM : process event [Setup] in state [Ready]  
AppController SM : state change to [SettingUp]  
AppController : CmdSetup Ok  
ConoscopeProcess : CheckWheel - ND : 0  
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 8  
ConoscopeProcess : CheckWheel - filter : Ya  
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7  
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0  
ConoscopeProcess : CheckWheel - BiWheelsPresent ok  
ConoscopeProcess : CheckWheel - MotorStatus = 0 Idle  
-> Ok  
-> TaktTimeMs 1853  
Worker : done request [CmdSetup] Ok  
AppController : on request done [CmdSetup] Ok  
AppController SM : process event [SetupDone] in state [SettingUp]  
AppController SM : state change to [Ready]

Filter: Ya and ND: 2 (change only ND)

CONOSCOPE\_DEMO - 0.14.37 (2020/11/18) | ADMIN

CONOSCOPE\_LIB 0.15.54 (2021/01/05)  
PIPELINE\_LIB 0.4.11 (2020/11/30)

Ready

SetConfig

cfgPath E:\TmpConoscope\15\Cfg

capturePath ./capture

fileNamePrep

fileNameApp

exportFileName

exportFormat bin+jpg

emulatedCamera

emulatedWheel

AE

AEMinExpoTimeUs 100

AEMaxExpoTimeUs 980000

AEExpoTimeGranularityUs 1

AELevel (percent) 95.00

AE measArea

AE measAreaWidth 6000

AE measAreaHeight 4000

AE measAreaX 992

AE measAreaY 1000

ROI

bUseRoi

Open

Setup

sensorTemperature 25.00

filter Ya

nd 2

irisIndex 2

SetupStatus

Measure

exposureTimeUs 3300

nbAcquisition 1

ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 8  
ConoscopeProcess : CheckWheel - filter : Xz  
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 5  
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0  
ConoscopeProcess : CheckWheel - BiWheelsPresent ok  
ConoscopeProcess : CheckWheel - MotorStatus = 0 Idle  
-> Ok  
-> TaktTimeMs 10062  
Worker : done request [CmdSetup] Ok  
AppController : on request done [CmdSetup] Ok  
AppController SM : process event [SetupDone] in state [SettingUp]  
AppController SM : state change to [Ready]  
AppController SM : process event [Setup] in state [Ready]  
AppController SM : state change to [SettingUp]  
AppController : CmdSetup Ok  
ConoscopeProcess : CheckWheel - ND : 0  
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 8  
ConoscopeProcess : CheckWheel - filter : Ya  
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7  
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0  
ConoscopeProcess : CheckWheel - BiWheelsPresent ok  
ConoscopeProcess : CheckWheel - MotorStatus = 0 Idle  
-> Ok  
-> TaktTimeMs 1853  
Worker : done request [CmdSetup] Ok  
AppController : on request done [CmdSetup] Ok  
AppController SM : process event [SetupDone] in state [SettingUp]  
AppController SM : state change to [Ready]  
AppController SM : process event [Setup] in state [Ready]  
AppController SM : state change to [SettingUp]  
AppController : CmdSetup Ok  
ConoscopeProcess : CheckWheel - ND : 2  
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 3  
ConoscopeProcess : CheckWheel - filter : Ya  
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7  
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0  
ConoscopeProcess : CheckWheel - BiWheelsPresent ok  
ConoscopeProcess : CheckWheel - MotorStatus = 16 Success  
-> Ok  
-> TaktTimeMs 4121  
Worker : done request [CmdSetup] Ok  
AppController : on request done [CmdSetup] Ok  
AppController SM : process event [SetupDone] in state [SettingUp]  
AppController SM : state change to [Ready]



## 6 Setup with error

Emulate an error by unplugging the cable between the camera and the filter module

CONOSCOPE\_DEMO - 0.14.37 (2020/11/18) | ADMIN

CONOSCOPE\_LIB 0.15.54 (2021/01/05)

PIPELINE\_LIB 0.4.11 (2020/11/30)

SetConfig

cfgPath E:\TmpConoscope\15\Cfg

capturePath ./capture

fileNamePrep

fileNameApp

exportFileNa

exportFormat bin+jpg

emulatedCamera

emulatedWheel

AE

AEMinExpoTimeUs 100

AEMaxExpoTimeUs 980000

AEExpoTimeGranularityUs 1

AELevel (percent) 95.00

AEMeasArea

AEMeasAreaWidth 6000

AEMeasAreaHeight 4000

AEMeasAreaX 992

AEMeasAreaY 1000

ROI

bUseRoi

Open

Setup

sensorTemperature 25.00

filter Ya

nd 2

irisIndex 2

SetupStatus

Measure

exposureTimeUs 3300

nbAcquisition 1

bTestPattern

MeasureAE

exposureTimeUs 3300

nbAcquisition 1

ExportRaw

ExportProcessed

bBiasCompensation

bSensorDefectCorrection

bSensorPnuCorrection

bLinearisation

bFlatField

bAbsolute

Error

AppController SM : state change to [Idle]

AppController SM : process event [Open] in state [Idle]

AppController SM : state change to [Opening]

AppController : CmdOpen Ok

: -> Ok

: -> CfgPath E:\TmpConoscope\15\Cfg\20008162

: -> CameraSerialNumber 20008162

: -> CameraVersion 1.15849 | Feb 12 2020

: -> TaktTimeMs 4327

Worker : done request [CmdOpen] Ok

AppController : on request done [CmdOpen] Ok

AppController SM : process event [OpenDone] in state [Opening]

AppController SM : state change to [Opened]

AppController SM : process event [Setup] in state [Opened]

AppController SM : state change to [SettingUp]

AppController : CmdSetup Ok

ConoscopeProcess : CheckWheel - ND : 2

ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 3

ConoscopeProcess : CheckWheel - filter : Ya

ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7

ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0

ConoscopeProcess : CheckWheel - BiWheelIsPresent FAILED

: -> Failed Failed (1)

: -> ND wheel not processing

: -> TaktTimeMs 737

Worker : done request [CmdSetup] ERROR : Failed

AppController : on request done [CmdSetup] ERROR : Failed

AppController SM : process event [Error] in state [SettingUp]

AppController SM : state change to [Error]

```
ConoscopeProcess : CheckWheel - ND : 2
ConoscopeProcess : CheckWheel - ND : wheel = 0 index = 3
ConoscopeProcess : CheckWheel - filter : Ya
ConoscopeProcess : CheckWheel - filter : wheel = 1 index = 7
ConoscopeProcess : CheckWheel - emulate camera 0, emulate wheel 0
ConoscopeProcess : CheckWheel - BiWheelIsPresent FAILED
```

BiWheelIsPresent FAILED indicate that the communication is not possible.

Copyright ELDIM 2021	AN: Wheel Problem Analysis	rev 0.1	Page 9
----------------------	----------------------------	---------	--------