

AxoStep *.cmmi data format

Note: All elements are 32bit floating point values (unless otherwise stated)

Mueller Matrix Data coordinates	N1 = Number of X-pixels in image
	N2 = Number of Y-pixels in image
	N3=4
	N4=4
Mueller Matrix Data	Mmpix[1,1] (1,1)
	Mmpix[1,1] (1,2)
	Mmpix[1,1] (1,3)
	⋮
	⋮
	Mmpix[1,1] (4,3)
	Mmpix[1,1] (4,4)
	Mmpix[1,2] (1,1)
	Mmpix[1,2] (1,2)
	⋮
	⋮
	Mmpix[N1,N2] (4,3)
	Mmpix[N1,N2] (4,4)
Number of Reduced parameters	N5
Reduced Parameter Data	RP[1,1] (1) =Transmittance
	RP[1,1] (2) =Depolarization Index
	RP[1,1] (3) =Tmax
	⋮
	⋮
	RP[1,1] (N5)
	RP[1,2] (1) =Transmittance
	RP[1,2] (2) =Depolarization Index
	⋮
	⋮
	RP[N1,N2] (N5-1)
	RP[N1,N2] (N5)
Meta Data	Wavelength
	Number Averaged
	xMin
	xStep
	xN
	yMin
	yStep
	yN
	Robot X
	Robot Y
	Tilt
	Rotation
	Tilt Correction (T=1,F=0)
	Rotation Correction (T=1,F=0)
	Position Correction (T=1,F=0)
	Camera Shutter (ms)
	Camera Gain
	Focus Position
	Magnification
	F/#
	percent saturation
	Date1 (U32 - MSB)
	Date2 (U32- LSB)
	Number of PSG steps
	MSR
	Orientation baseline applied (T=1,F=0)
	Digital zoom
	Binning

Reduced Parameter (Rp) elements

(1)	Transmittance/Reflectance
(2)	Depolarization Index
(3)	Tmax
(4)	Tmin
(5)	Retardance Magnitude (°)
(6)	Linear Retardance (°)
(7)	Retardance Orientation (°)
(8)	Circular Retardance (°)
(9)	Retardance magnitude (nm)
(10)	Linear Retardance (nm)
(11)	Circular Retardance (nm)
(12)	Retardance Ellipticity
(13)	Diattenuation Magnitude
(14)	Linear Diattenuation
(15)	Diattenuation Orientation (°)
(16)	Circular Diattenuation
(17)	Diattenuation Ellipticity
(18)	Polarizance Magnitude
(19)	Linear Polarizance
(20)	Polarizance Orientation (°)
(21)	Circular Polarizance
(22)	Polarizance Ellipticity
(23)	Diattenuation Vector (element 1)
(24)	Diattenuation Vector (element 2)
(25)	Diattenuation Vector (element 3)
(26)	Retardance Vector (element 1)
(27)	Retardance Vector (element 2)
(28)	Retardance Vector (element 3)
(29)	Polarizance Vector (element 1)
(30)	Polarizance Vector (element 2)
(31)	Polarizance Vector (element 3)

Date values form a 64 bit double floating point that is the number of seconds after 12:00 am Jan 1, 1904 (GMT)

	Optical Gauging applied (T=1,F=0)
	Optical gauging angle
	Vision offset X
	Vision offset Y
	Panel size
	Force physical applied
Optional stuff	Polar Angle
	Azimuth angle
	User defined parameter (first 4 characters)
	User defined parameter (last 4 characters)
	User Defined Value

AxoStep *.bmmi data format

Note: All elements are 32bit floating point values (unless otherwise stated)

Mueller Matrix Data coordinates	N1 = Number of X-pixels in image
	N2 = Number of Y-pixels in image
	N3=4
	N4=4
Mueller Matrix Data	Mmpix[1,1] (1,1)
	Mmpix[1,1] (1,2)
	Mmpix[1,1] (1,3)
	⋮
	⋮
	Mmpix[1,1] (4,3)
	Mmpix[1,1] (4,4)
	Mmpix[1,2] (1,1)
	Mmpix[1,2] (1,2)
	⋮
	⋮
	Mmpix[N1,N2] (4,3)
	Mmpix[N1,N2] (4,4)
Meta Data	Wavelength
	Number Averaged
	xMin
	xStep
	xN
	yMin
	yStep
	yN
	Robot X
	Robot Y
	Tilt
	Rotation
	Tilt Correction (T=1,F=0)
	Rotation Correction (T=1,F=0)
	Position Correction (T=1,F=0)
	Camera Shutter (ms)
	Camera Gain
	Focus Position
	Magnification
	F/#
	percent saturation
	Date1 (U32 - MSB)
	Date2 (U32- LSB)
	Number of PSG steps
	MSR
	Orientation baseline applied (T=1,F=0)
	Digital zoom
	Binning
	Optical Gauging applied (T=1,F=0)
	Optical gauging angle
	Vision offset X
	Vision offset Y
	Panel size
	Force physical applied
Optional stuff	Polar Angle
	Azimuth angle
	User defined parameter (first 4 characters)
	User defined parameter (last 4 characters)
	User Defined Value

Date values form a 64 bit double floating point that is the number of seconds after 12:00 am Jan 1, 1904 (GMT)

AxoStep *.astp data format

- *.ASTP files are actually just *.ZIP file archives. If you change the file extension to
- *.ZIP you will be able to open the file in windows. You will find that it contains a list of
- *.CMMI file and (optionally) a file called 'scaninfo.txt'

For example, the ZIP file might contain:

```
2019_06_20_14_25_07.cmmi      measurement was made on 6/20/2019 at 2:25:07 PM
2019_06_20_14_25_44.cmmi
2019_06_20_14_26_43.cmmi
2019_06_20_14_27_20.cmmi
2019_06_20_14_28_01.cmmi
2019_06_20_14_28_38.cmmi
2019_06_20_14_29_19.cmmi
scaninfo.txt
```

The scaninfo.txt file is optional. If it exists, it includes info about how the measurement was acquired so that the AxoStep Viewer software can properly soft the data sets.

The contents of an example scaninfo.txt file are shown below.

```
[ScanInfo]
Scan Type=Tilt
Number of tilt angles=7
Number of Rotation angles=1
Number of wavelengths=1
Time and Date="6/20/2019 5:29:24 PM"
Version Number=""
Registration Array.<size(s)>=0
Comments=""
```