

LEVEL 0.b

Data from a measurement session are stored in a set of 2*NCH+1 files (1 file containing basic information on the session + 2 files, one for the analogical and one for the digital output, for each channel acquiring during the session).

All files from a single measurement session have a common **session** name in the filename for example: 060511_____

The **session** is 11 characters long. First 6 characters YYMNDD year month day. Remaining 5 used to specify the type of the session. If '_____' or with a 'n' somewhere are night-time sessions (a common naming standard should be set) .

The summary data file (**session+'.sum'**) is organized as follow (see example below):

```
060511_____
 7 300
 1 2 3 4 5 6 7
2006 5 11 20 14 1
2006 5 12 1 38 4
```

```
060511_____ : session
7 300 :number of channels (1-8) and number of profiles (corresponding to the number of lines in the
data file)
```

```
1 2 3 4 5 6 7 :channels acquired during this session
2006 5 11 20 14 1 :time UTC of the first acquisition profile yy mn dd hh mm ss
2006 5 12 1 38 4 :time UTC of the last acquisition profile yy mn dd hh mm ss
```

The Fortran-like format to read .sum file is:

```
read(78,710) session
read(78,786) ncc,nscan
read(78,787) (icg(kk),kk=1,ncc)
read(78,789) timestart !yyf,msf,ddf,hhf,mnf,ssf
read(78,789) timestop !yyl,msl,ddl,hhl,mnl,ssl
710 format(a11)
786 format(i2,i4)
787 format(8i2)
788 format(a11,1x,a8)
789 format(i4,5i3)
```

Data files are named according with the following scheme:
namefile=session+type+channel+'.out'

type='A' or 'D' whether the file contains measurements acquired in the Analog (D) or the Photonn counting (D) mode

channel='01' '08' indicative of the acquisition channel as specified in the following table:

Channel	λ [nm]	Telescope	Comments
01	532	15 cm	PBL & low troposphere aerosols, PBL height, clouds
02	532	30 cm	Mid-high troposphere aerosols & clouds
03	532	9x50cm	UTLS aerosols, Rayleigh-based Temperature (Stratosphere-Mesosphere)
04	386	9x50cm	N ₂ Raman: low-mid troposphere, WV mixing ratio, aerosols & cloud
05	407	9x50cm	H ₂ O Raman: WV mixing ratio
06	386	9x50cm	N ₂ Raman: mid-high troposphere, WV mixing ratio, aerosols & cloud, temperature
07	407	9x50cm	H ₂ O Raman: WV mixing ratio
08	355	30cm	Mid-high Troposphere aerosols & clouds

The Photon Counting Mode (D) acquisition data files are organized as follow:

Each file contains a number of lines as specified in the .sum file each one containing a single 1' profile.
Each line contains:

- 6 integer values for date and time
- 7 values of parameters characterizing the profile
- 2000 integer values containing the digital counts of the profile (vertical resolution=75 m) the level of the station is about 107 slm.

1-6: Date and time UTC (6 integers): YYMNDD HHMMSS
7: Number of averages (600) derived from the laser frequency 10 Hz
8: Duration [s] of the profile typically 59.9 s
9: Threshold of the photomultiplier [V]
10: Width of the bin [μ s]
11: Counter frame: Length of acquisition [μ s]
12: Number of samples acquired after the compression
13: Number of samples reported (i.e. dimension of the profile)
14-2013: counts at 75 m resolution

The fortran-like format to read the single profile is:

```
integer yy,ms,dd,hh,mn,ss,iave,cframe,ias,iass,dati(2000)
real duration,vthre,bin
read(1,10) yy,ms,dd,hh,mn,ss,iave,duration,vthre,bin,cframe,ias,iass,dati
10 format(i4,5i3,i4,f6.1,1x,f7.3,f4.1,3i5,2000i6)
```

The Analog Mode (A) acquisition data files are organized as follow:

Each file contains a number of lines as specified in the .sum file each one containing a single 1' profile.
Each line contains:

- 6 integer values for date and time
- 10 values of parameters characterizing the profile
- 800 real values containing the profile of average acquired measurement (vertical resolution=75 m) the level of the station is about 107 slm. (NB: max=4096.)

1-6: Date and time UTC (6 integers): YYMNDD HHMMSS
7: Number of averages (600) derived from the laser frequency 10 Hz
8: Duration [s] of the profile typically 59.9 s
9-10: compression ratio (typically:1:10)
11: Sample Frequency [MHz]
12: Number of profiles with an Overflow
13: Number of profiles with and Underflow
14: Counter frame: Length of acquisition [μ s]
15: Number of samples acquired after the compression
16: Number of samples reported (i.e. dimension of the profile)
17-816: values at 75 m resolution

The fortran-like format to read the single profile is:

```
integer yy,ms,dd,hh,mn,ss,iave,ratio1,ratio2,cframe,ias,iass,ratio1,ratio2,
+ samplef,over,under
real duration,datia(800),samplep
read(2,20) yy,ms,dd,hh,mn,ss,iave,duration,ratio1,ratio2,samplef,over,under,
+ samplep,ias,iass,datia
20 format(i4,5i3,i4,f6.1,i2,2i3,2i4,f5.2,2i4,800(1pe10.3))
```