

Sinters Sun-Live-OSD

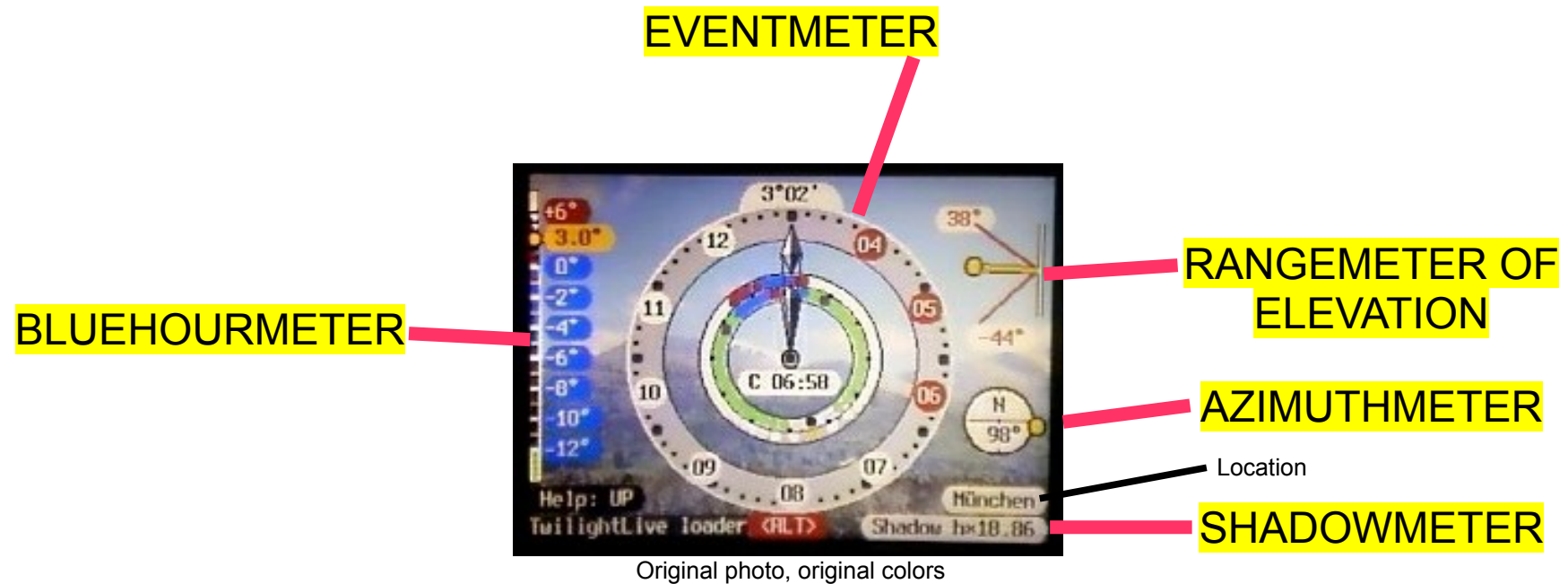
Manual, Rev. 036, April 2013

Five technical instruments, providing a lot of Live-Information (or simulation) of the sun.

This tool improves your situational awareness concerning available light (outdoor) by providing continuously updated information about the state of elevation of the sun. To time your Photo-Shooting the next 24 hours and especially during Blue-Hour-Shooting.

Sunrise, Sunset, Blue Hour, Nautical Twilight, Astronomical Twilight, Golden Hour, Zenith, Azimuth, Elevation, Shadow-Length.

Danke an Msl für Code-Check, Anbindung an das Twilight-Zeitensystem und Übersetzung von Rudis Winkel-Befehlen. Ebenfalls Danke an Rudi, dessen Trigonometrie-Befehle für CHDK hier im Sun-Live-OSD alle zehn Sekunden mehrere hundertfach zur Anwendung kommen, sowie den Testern Werner_O und Erfi00 für deren Feedback.



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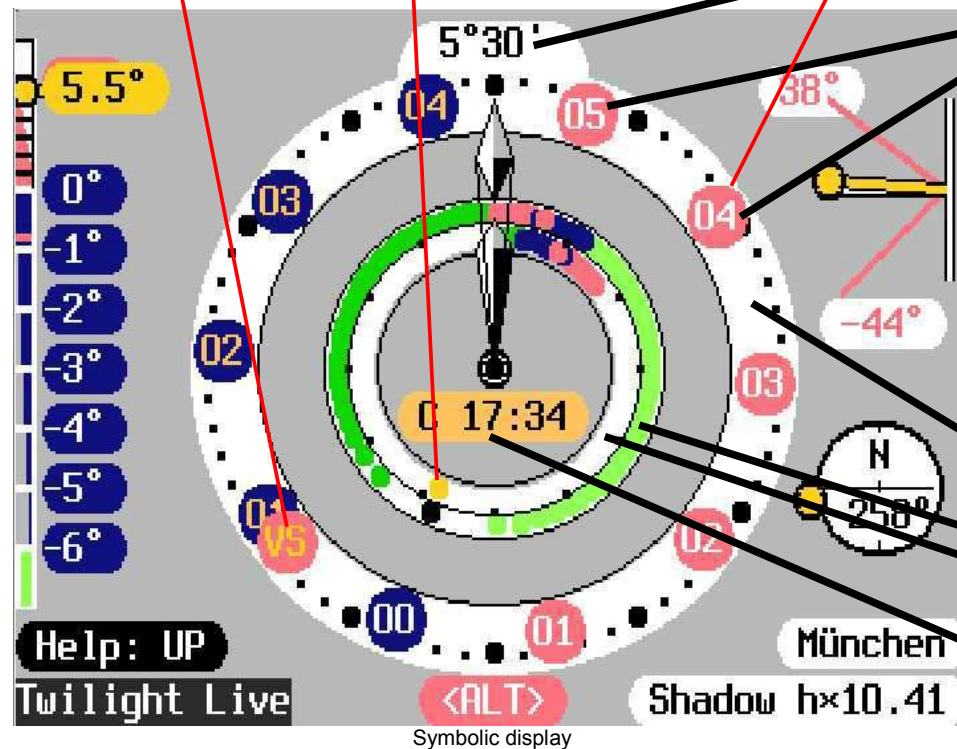
1. EVENTMETER (Progress of elevation)

Reading the EVENTMETER: The „12-o-clock-position“ of both central pointers represents the moment of displayed time. Chronological placed events:

Visual Sunset will happen in 38 minutes („VS“ placed approx. 00:38)

Elevation of 4° during Golden Hour in 9 minutes („04“ placed approx. 00:09)

Zenith will be reached in about 18 3/4 hours (small yellow disc placed approx. 06:45 +12h)



Countdown-based display revealing the progress of elevation in

- the next 60 minutes (large ring)
- the next 12 hours (small ring outer side)
- 12-24 hours (small ring inner side)

On top of the large ring: Value: current elevation-angle of sun in deg and minutes

Colored Event-Plates chronological placed according „Remaining time until occurrence of displayed events“, like a countdown

Angle-Events are indicated as (in the large ring inscribed) colored plates:

White: trespass of angles $> +6^\circ$

Red: Golden Hour: trespass angles $+1^\circ \dots +6^\circ$

Blue: In Blue Hour-Mode trespass angles $-6^\circ \dots 0^\circ$ / In Nautical Mode: trespass angles $-12^\circ \dots 0^\circ$

Green: trespass NightAngles $< 6^\circ$ (BlueHourMode) / $< 12^\circ$ (NauticalMode)

Red „VS“: Visual Sunrise/Sunset

Yellow „Ze“: Zenith

Black „Lo“: Lowest elevation (Night)

Grey „As“: Limit of „Astronomical Twilight“ (-18°) Astronomical darkness (only visible in „NauticalMode“, not in „BlueHourMode“)

Large ring: representing next 0-60 minutes

Small ring outside: representing next 0-12 hours

Small ring inside: representing time-interval in 12-24 hours

Near centre: time HH:MM; (yellow * indicates DST Daylight-Saving-Time)

White background: Current time

Light-Red background: Simulated time by using ZOOM+/-

C = Camera-time

L = Local-time

Switch by „SET“ (thx Msl)

2. BLUEHOURMETER (and GoldenHourMeter)

Vertical Scale of angles of Blue- and Golden-Hour:

Golden Hour: Elevation $0^{\circ} \dots +6^{\circ}$, scaled 6 px/deg

Blue Hour: Elevation $-6^{\circ} \dots 0^{\circ}$, scaled 20 px/deg in Blue-Hour-Mode

Nautical Twilight: $-12^{\circ} \dots 0^{\circ}$, scaled 10 px/deg in Nautical-Twilight-Mode

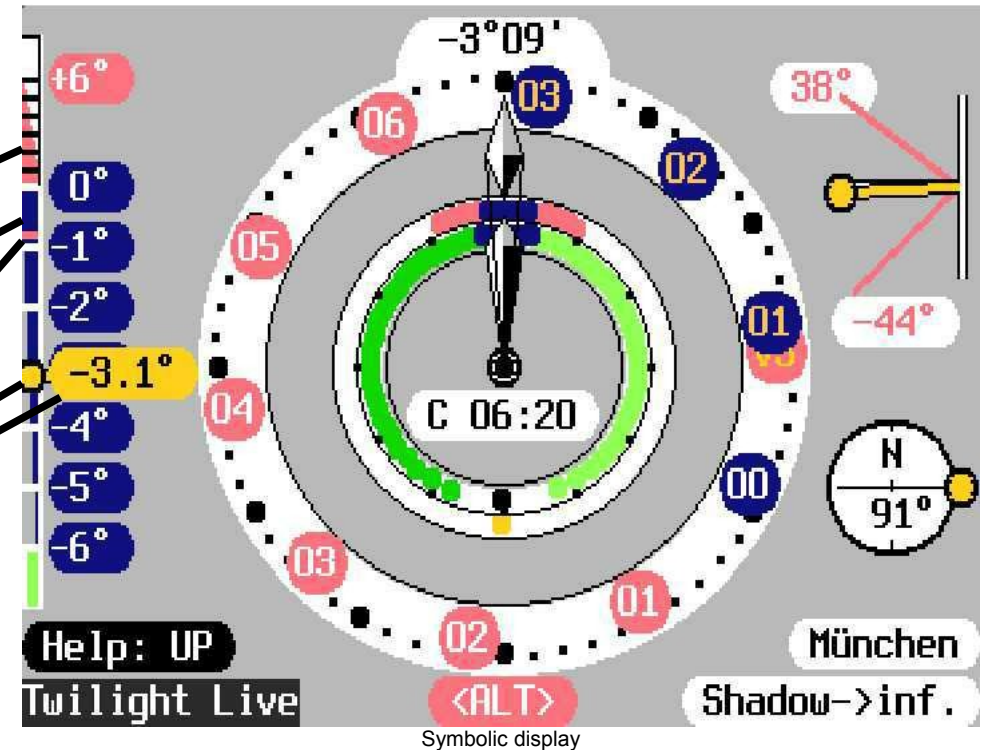
Small red marker near „-1“: angle of Visual Sunrise/Sunset considering refraction

Yellow sun-disc indicates current state of Golden/Blue Hour.

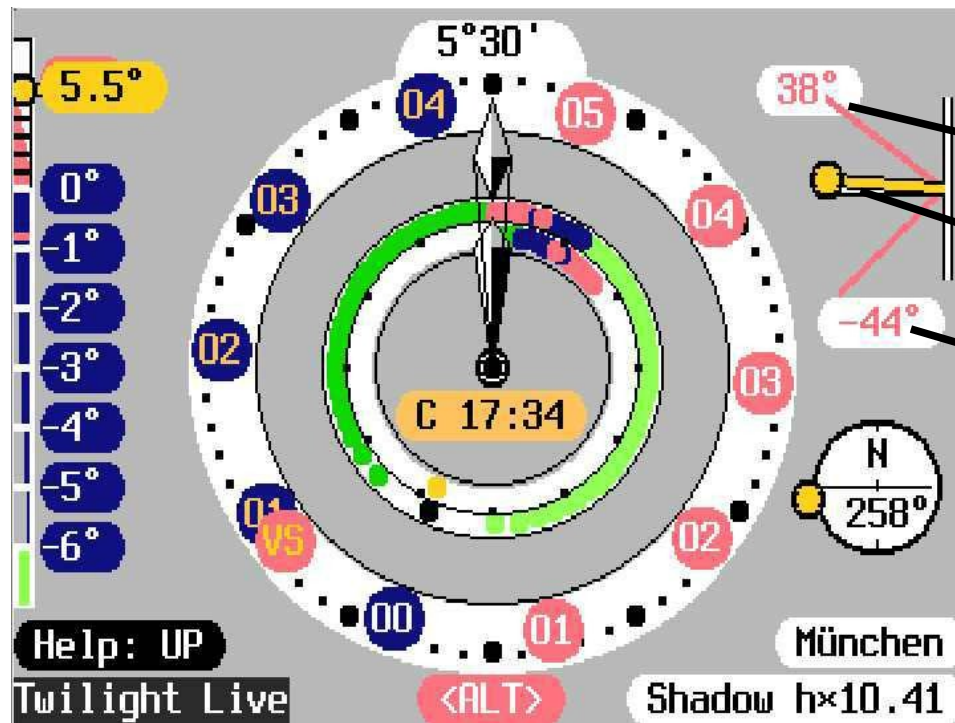
Yellow needle: Value: current elevation-angle of sun in deg (decimal)
(Value rounded)

SWAP between Blue-Hour-Mode and Nautical-Twilight-Mode by pressing DOWN

(BlueHourMeter in Nautical-Twilight-Mode: fig. 4. AZIMUTHMETER)



3. RANGEMETER OF ELEVATION



Symbolic display

Angular Range of elevation (current day):

Maximum elevation (red)

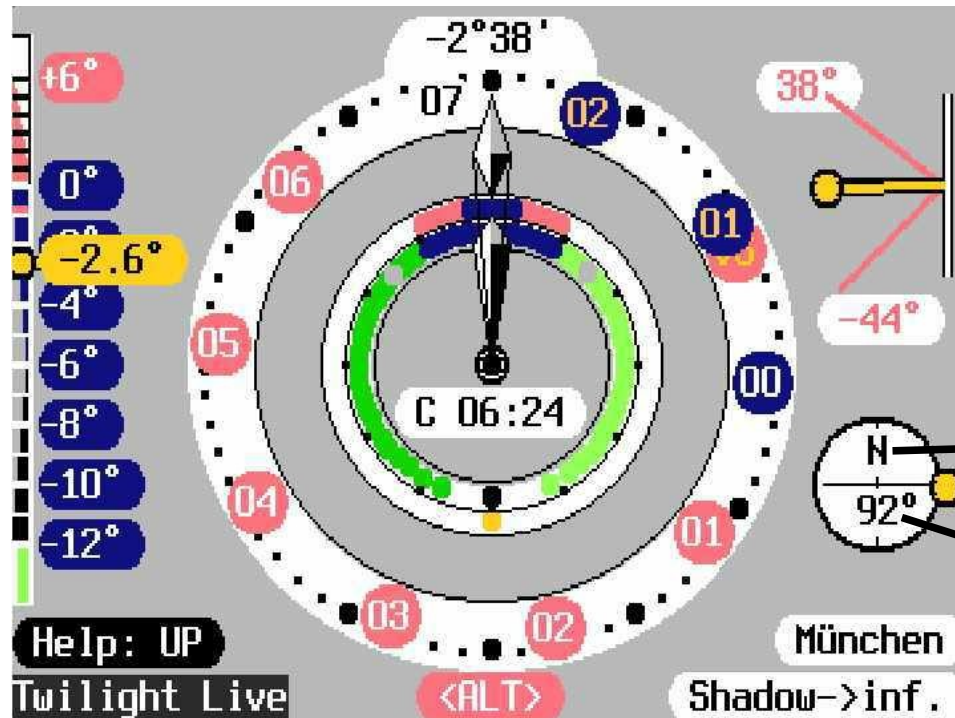
Current elevation (yellow)

Minimal elevation (red)

(Possibility to simulate move of sun by ZOOM +/-)

4. AZIMUTHMETER

Beta-Version



Symbolic display

Compass indicates the direction of sun
(corresponding to displayed time):

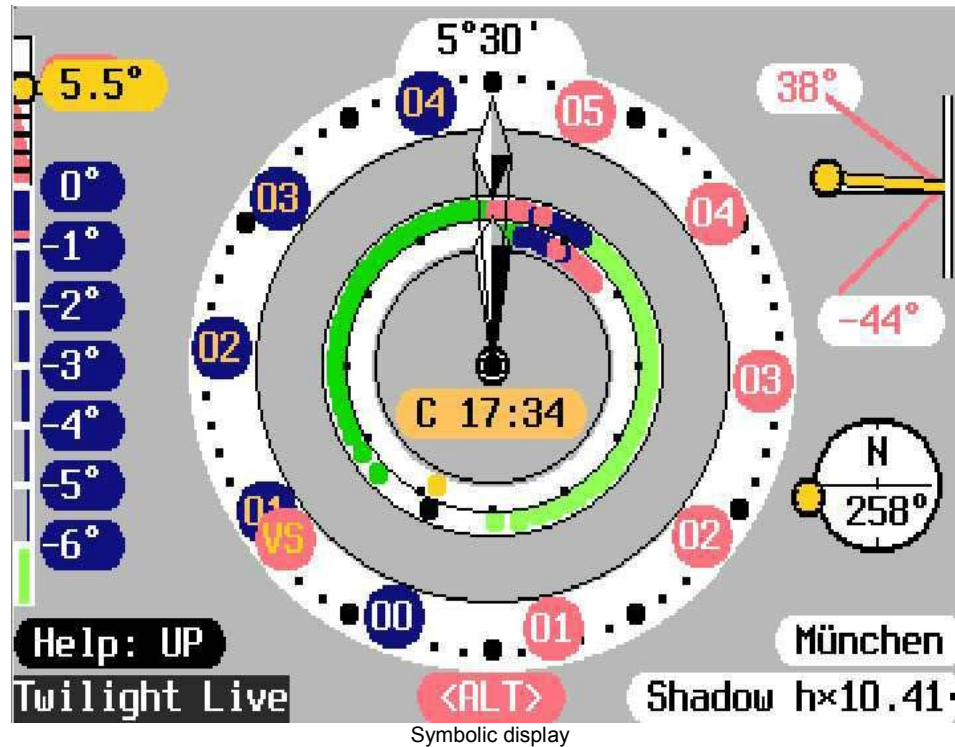
„North“

Angular placed yellow small sun-disc

Azimuth: Value in deg

(Possibility to simulate move of sun by ZOOM +/-)

5. SHADOWMETER



Current shadow-length: as factor of height
(or „inf.“)

6. Information and Operating Instructions

6.1. *Reduced Sun-Live-OSD*

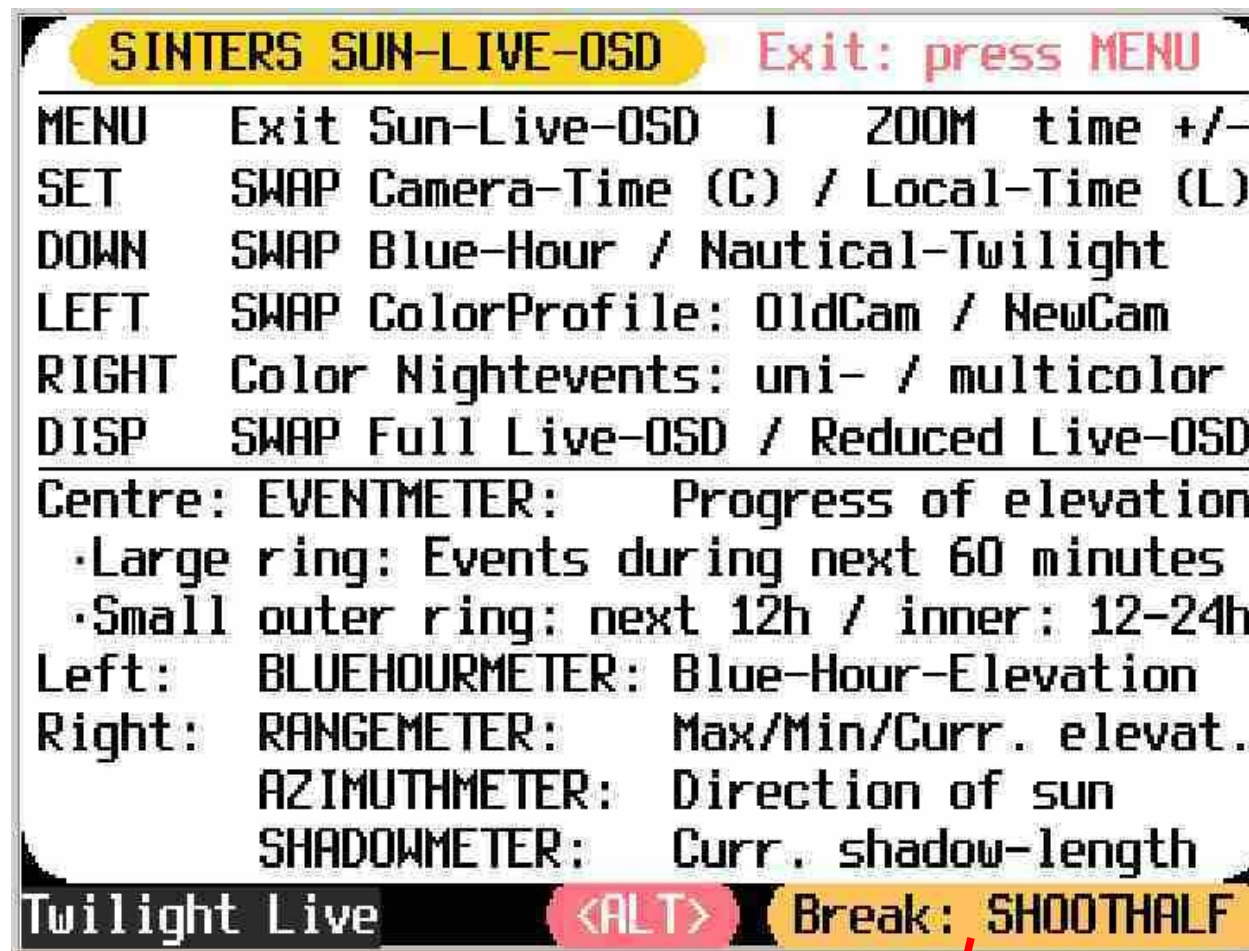
SWAP between FullOSD and ReducedOSD by pressing DISP

Reduced Sun-Live-OSD:



6.2. *HELP* (by pressing UP)

Short explanation of buttons and instruments:



Symbolic display

Only displayed if parameter „Break OSD by SHOOT_HALF“ = ON

6.3. Script-Parameter

User-controlled preset-options:

(**Bold values** = fixed presets in Twilight-Live-Pure; *Italics* = constant in Twilight-Live-Pure)



Symbolic display of Parameters of Twilight-Live-Expert

Note:

Script „Twilight-Live-Expert“: All the parameters/presets above are fully user-controlled, displayed, and available.

Script „Twilight-Live-Pure“: Most preset-parameters are **fixed** (and not displayed). Some parameters are *constant* and can't be influenced by the user.

StartDelay (0-**1000** msec). To avoid graphical malfunction.

Additional Astronomical-Twilight-Data in Main-Menu (ON / **OFF**)

Start Script in Sun-Live-OSD-Mode (ON / OFF)

To **start** the Sun-Live-OSD **by one click** (Button: SHOOT_FULL)

Break OSD by Shoot_half (**ON** / OFF):

To **end** the Sun-Live-OSD **by one click** (Button: SHOOT_HALF)

Override charts (ON / **OFF**): ON: selecting charts = selecting OSD

To **return** (from Main-Menu) to Sun-Live-OSD **by one click** (DISP)

Acoustic Feedback (**ON** / OFF):

Beep if button is pressed

TimeStep +/- by ZOOM: (Simulated time)

Increase/decrease time by ZOOM +/-

(available intervals: 15 min, 30 min, **1h**, 2h, 3h, 6h, 12h)

start Full OSD / Reduced OSD: (Button DISP during Live-OSD)

Full OSD / Scale of BlueHourMeter

BlueHour / Nautical-Mode: (Button DOWN during Live-OSD)

BlueHour-Mode: blue events/scale: -6°...0°

NauticalTwilight-Mode: blue events/scale: -12°...0°

Event-NightColors: (Button RIGHT during Live-OSD)

UniColored night-events (lightgreen)

MultiColored night-events (lightgreen=today; green=tomorrow)

ColorProfile Grey (OldCam / **NewCam**): (Button LEFT dur. L.-OSD)

Due to different CHDK-color-profiles of different cams you can adapt the look of Eventmeter and BlueHourMeter.

6.4. Twilight-Main-Menu (adapted)

(by pressing MENU in Sun-Live-OSD)

SWAP Location (Location and GeoData)

Timezone

Azimuth (Sun)

Indicator of DST Daylight-Saving-Time = ON

Yellow „DST“ indicates Time-Data as DST (DaylightSavingTime) (Yellow „DST“ not available in Twilight-Live-Pure)

additional Astronomical-Twilight-Data if astronomical parameter = ON. (Not available in Twilight-Live-Pure)

Azimuth (Sun)

„~“ means: „Approximated“ Azimuth (Sun) during Zenith

Load GeoData

DST=ON*/OFF

SWAP to Sun-Live-OSD (if „Override Charts“ = ON. Else: SWAP to „CHARTS“)

Calendar

Info-Screen

End Skript

Symbolic display of Main-Menu of Twilight-Live-Expert

The screenshot shows a terminal-style interface with the following content:

```

[↑↓] (1) München TZ: +1:00
      48.1° 11.5° 15.04.2013 | Azim.
-----
ast. 4:29 51° | naut.: 5:13 DST 61°
bürgl. Morgendämmerung: 5:52 DST 68°
      Sonnenaufgang: 6:25 DST 75°
      Ende Goldene Stunde: 7:07 DST 82°
      Sonnenhöchststand: 13:14 DST ~186°
      Beginn Goldene Stunde: 19:20 DST 278°
      Sonnenuntergang: 20:02 DST 285°
bürgl. Abenddämmerung: 20:35 DST 292°
ast. 21:58 309° | naut.: 21:15 DST 299°
-----
[SET] [←] [→] [DISP] [Half] [MENU]
GeoData Cal *DST LiveOSD Info End
Twilight Live Expe <ALT>
  
```

Annotations and their corresponding elements in the screenshot:

- SWAP Location** points to the location "München".
- Location and GeoData** points to the coordinates "48.1° 11.5°".
- Timezone** points to "TZ: +1:00".
- Azimuth (Sun)** points to the "Azim." column header.
- Indicator of DST Daylight-Saving-Time = ON** points to the asterisk (*) before "DST".
- Yellow „DST“ indicates Time-Data as DST (DaylightSavingTime) (Yellow „DST“ not available in Twilight-Live-Pure)** points to the yellow "DST" text.
- additional Astronomical-Twilight-Data if astronomical parameter = ON. (Not available in Twilight-Live-Pure)** points to the "ast." and "naut." rows.
- Azimuth (Sun)** points to the azimuth values (61°, 68°, 75°, 82°, ~186°, 278°, 285°, 292°, 299°).
- „~“ means: „Approximated“ Azimuth (Sun) during Zenith** points to the tilde (~) before 186°.
- Load GeoData** points to the "GeoData" button.
- DST=ON*/OFF** points to the "*DST" button.
- SWAP to Sun-Live-OSD** (if „Override Charts“ = ON. Else: SWAP to „CHARTS“) points to the "LiveOSD" button.
- Calendar** points to the "Cal" button.
- Info-Screen** points to the "Info" button.
- End Skript** points to the "End" button.
- Symbolic display of Main-Menu of Twilight-Live-Expert** points to the bottom bar containing "Twilight Live Expe" and "<ALT>".

6.5. Instructions

6.5.1. One-Click-Navigation (available in Twilight-Live-Expert)

To use the fast and easy ONE-CLICK-NAVIGATION in Sun-Live-OSD, set **parameters**

Start Script with Sun-Live-OSD = ON

Break OSD by SHOOT_HALF = ON (in Twilight-Live-Pure „ON“ is fixed.)

Override charts = ON (Note: During „Override charts“ = ON: Chart „sun chart of a day“ and chart „sunrise/sunset year chart“ not available)

Usable Clicks in ONE-CLICK-NAVIGATION of Sun-Live-OSD:

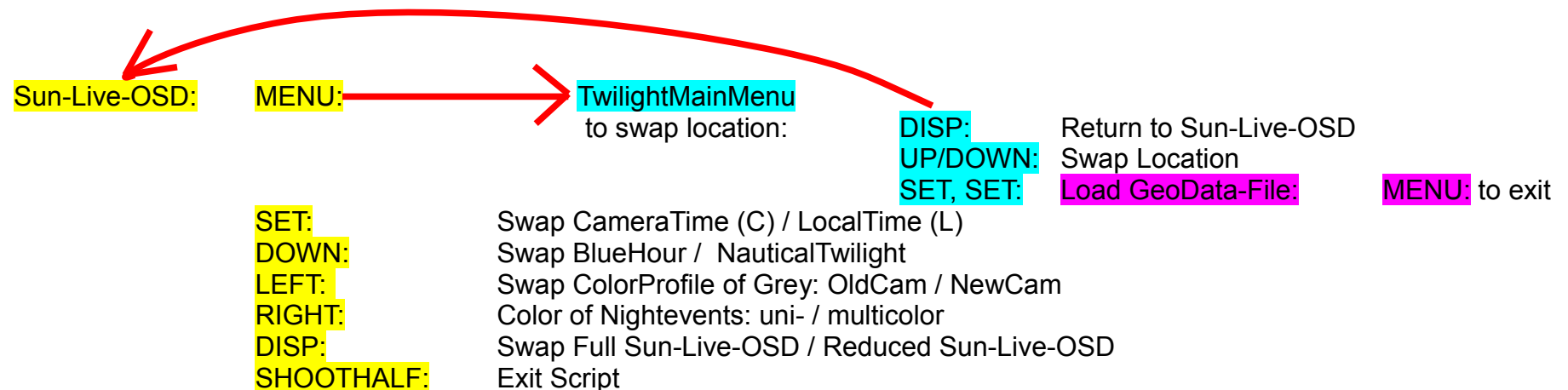
Start script: SHOOT_FULL

Stop script: SHOOT_HALF

Navigate to change Location: MENU

Navigate back to Sun-Live-OSD: DISP

Structure of ONE-CLICK-NAVIGATION (press SHOOT_FULL to start the script):



6.5.2. Locations

Swap Location or Load GeoData-File:

Swap location during Sun-Live-OSD:

in case of locations of preloaded Data, by pressing:

MENU, UP or DOWN to select location..., DISP (press once if „Override Charts“=ON; else press twice)

or in case of locations in **extern GeoData-File** (**required path: CHDK/GEODATA**), load GeoData-File by pressing:

MENU, SET, SET, (select and load GeoData-File by UP/DOWN/SET), MENU, UP or DOWN to select location..., DISP (press once if „Override Charts“=ON; else press twice)

Your favourite (Home-)Location:

Start the skript always with your favourite location:

Please **create or edit** your personal GeoData-File named „**GeoUserD.txt**“ to start the skript loading your personal favourite (home-)location (insert your favourite (home-)data in the first data-set of the file). (**required path: CHDK/GEODATA**)

Add additional new locations:

Add additional new locations similar: Edit or add data-sets and create your own GeoData-Files.

6.5.3. Camera-time / Local-time

If you changed the location, press SET in Sun-Live-OSD to swap to current local time („L“) of the new location.

6.6. Troubleshooting

In case of „not enough memory“, use TwilightLive-Launcher-Script of Rudi. (Thx!)

„Sun chart of a day“ and „sunrise/sunset year chart“ are available if parameter „OSD: Override Charts“ = OFF.

If you „tilt“ your cam during executing this script: The graphics/screen will be cleared if the orientation sensor detects moving. During Sun-Live-OSD you can refresh the graphics p.ex. by pressing UP twice, or wait some seconds.

In case of graphical malfunction during scriptstart, increase parameter „StartDelay for draw“. (For experts: If you like to try to speed up the start of the script: decrease this parameter carefully and test which delay your cam needs without getting a graphical malfunction. In Play-Mode my Ixus60 works fine without any StartDelay. I decreased it to 0 ms. New cams with a play-mode-button maybe need a StartDelay near 1000 ms.)

Note: Parameter „StartDelay for draw“ is not available in „Twilight-Live-Pure“ (constant StartDelay of 1000 ms).

Comparing the progress of current indicated elevation-event and current elevation-angle, due to rearranged equations, sometimes you will take notice of small deviations.

Due to equations and Lua-integer-system, the intervall between two running events may fluctuate irregular in small amount. Especially at high elevation-angles.

Sun-Live-OSD: Event of „Astronomical Twilight“ (indicated: grey „As“) is displayed only in „Nautical-Twilight-Mode“. Use button „DOWN“ to swap between „Blue-Hour-Mode“ and „Nautical-Twilight-Mode“.

Enjoy the possibilities,
Sinter

München, April 2013