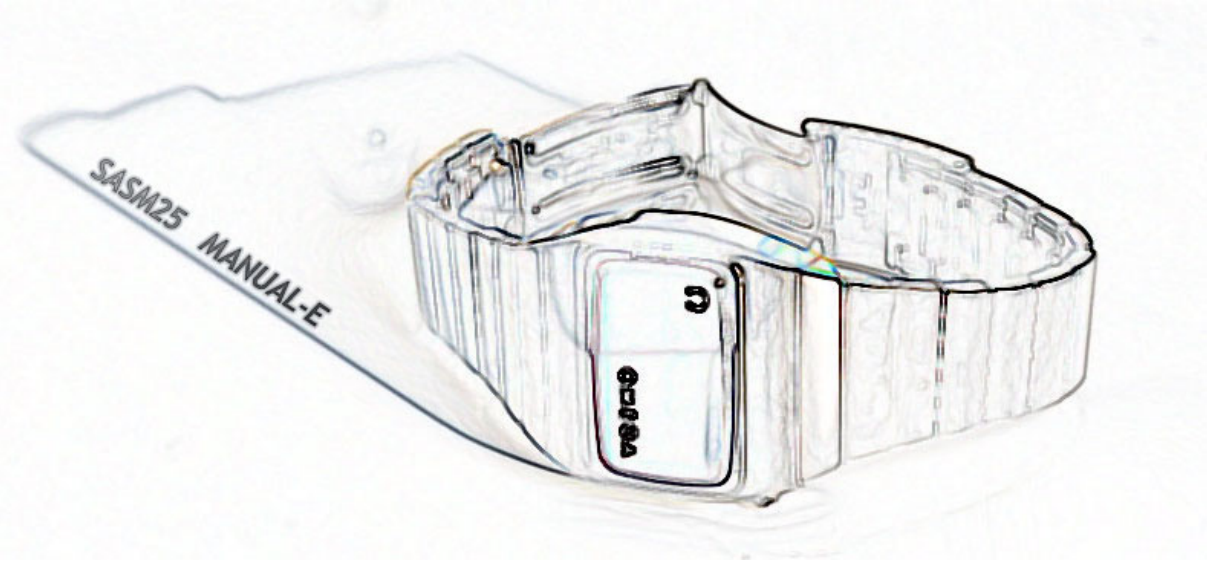

1. General description of the SASM23

The SASM23 module has been developed for Pulsar® P3 Date / Command and Date II LED watches with the following model numbers: 3100, 3115, 3120, 3130, 3136, 3140, 3216, 3230, 3250, 3336, 3366, 3376, 3386 and 3396. The SASM25 movement replaces the Pulsar module no. 301. Moreover it is a 1:1 replacement for Omega® Time Computer II – watches with the model number 1601 and Hamilton® - QED and QTC watches with pushers at 3 and 9 o'clock. The SASM2X series is available in two different versions:

- With software time trimming feature and magnet set (SASM23)
- With soft- and hardware time trimming feature, light sensor and magnet set (SASM25)

As known from other watch movements produced by StrikesAndSpares Semiconductor the SASM23 is built with original parts from disassembled Pulsar, Omega or Hamilton movements. The plastic carrier, the quartz crystal and the reed switches will be swapped from your module to a new circuit board. A special characteristic of these modules are the displays: The seven bars of each digit light up with tiny dots so that the watches have been given an aesthetically nice appearance. Of course, the original displays are used on the new circuit board, too. In addition the SASM23 comes with the original light sensor which regulates the brightness of the display down in a dark environment. This feature has been introduced to save on battery power and makes the watch more reliable.

2. The assembled module

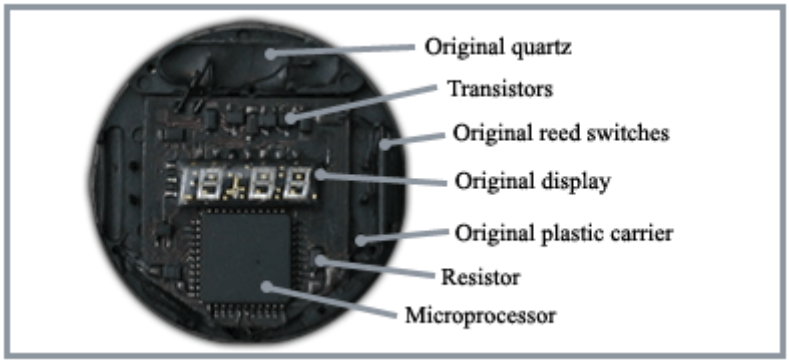

fig. 1: components of the SASM13, 14 and 23

3. Features of the SASM23

The SASM23 module has a time / seconds and a date feature. In case the original quartz crystal looses time for example due to component aging the time can be adjusted through the new software trimming system. All modules will be delivered unadjusted. Time and date of the watch is set through the magnet in the clasp of the watch. This feature is called magnet set.

4. The time display

Push the right command button to show the time. Hold this button so that a continuous second display can been seen through the red lens. Release the button to turn the display off.

fig. 2: Time display

fig. 3: Continuous second display

5. The date feature

The left push button activates the date display. Month and day will be shown. The upper dot will light up during AM time, the lower dot acts as a PM indicator.

fig. 4: Date display

6. How to set time and date and how to trim the frequency

The time, date and the software time trimming feature is activated with the magnet which is hidden in the clasp of the watch. If the original magnet is not available or too weak for various reasons, you can use any magnet to gain access to the setting feature. We recommend starting with the day and continue to set the month, then hours and minutes last. Hold the magnet in the „hr“ notch and push both command buttons to set the day.

fig. 5: magnet set

fig. 6: date advance

During the set of the day you should also take care of the AM / PM indicator. The upper dot should light up between 00:00h and 11:59h, between noon and midnight the lower dot should indicate PM time. To increment the month just release the time button on the right. On February, 29th the date has to be changed to the 1st of March manually (except for leap years).

In the same manner the hours and minutes are set. Hold the magnet without the actuation of a command button in the „hr“ notch to advance the hours. Move the magnet in the “min” notch to increase the minutes. Make sure that you always set the minute to the next following one. For example at 12:09h, set the minutes to 12:10h. The time computing remains at :00 seconds until the time button has been pushed just at 12:10h to show the time and to start the time counter at zero seconds.

fig. 7: hour advance

Abb. 8: minute advance

The accuracy of your module can also be adjusted by software. To start with time correction you will need a second magnet, so that the reed switches in both notches become closed. The display will light up with „cor“ for (time) correction.

fig. 9: accuracy adjustment

fig. 10: feature start

Release both magnets. To diminish or increase the value of the correction parameter, hold a magnet in the “min” notch. The correction value starts with 0.5 and ends with 5.0- (minus 5.0). Example: If the watch gains half a second per day, choose the correction value -0.5 (minus 0.5). In case the watch is running too slow and looses one second a day, choose the correction value 1.0.

fig. 11: Correction value 1.5-

fig. 12: Storage of the value

Once the right value is shown in the display, push the time button to the time counter correction. „SEt“ will light up in the display. To deactivate the software trimming feature, choose the value 0.0 and push the time button.

7. Batteries

We recommend installing two Varta cells of the type V13GA, V76PX or V357. Other widely available types which can be used are LR44, # 357, # 1154, AG13 or SG13. The installation of the so called „spacers“ is optional. These are plastic rings, which can be placed around the cells to compensate the difference in diameter of the discontinued type #355 cells.

8. Warranty

We deliver all SASM23 modules with a full one year warranty. The appointed date of the warranty is the indicated date of the invoice. Please keep this invoice for your own records and as a document in case of a defect on the module which is covered by the warranty.

9. Assembling of module and case

The mounting of the module back in the case can be accomplished through StrikesAndSpares Semiconductor. We perform all necessary adjustments and install new batteries which are totally free of charge. Therefore we recommend sending the whole watch (maybe without band). To take the module out of the watch, the back has to be removed. The bezel has to be twisted against clockwise rotation until the back can be taken off. You will find two screws which hold the plastic carrier of the movement. Remove them to extract the module out of the case. The installing can be achieved in reversed order. The assembling and disassembling will be at your own risk.

10. Software: Versions and update

As all active SASM modules the SASM2X series also have a software version indicator. The version indicator will show up in the display when batteries are replaced. `SAS will appear on the display, followed by the software release and the module number, for example f.23.

The different software releases are arranged by the corresponding letter and are used in the manner below. All SASM2X modules can be updated to the latest release, which is 29, 90€ per module.

E:	Initial release
A:	1st software modification
b:	2nd software modification
c:	3rd software modification
d:	experimental release
F:	4th software modification
H:	5th software modification

11. Final comments

Occasionally we receive letters and emails from customers which bought valuable watches of notable watch makers over 40 years ago. Quite often these watches have stopped working when they became less interesting in the 1980s and the batteries started to leak. The point of time, when these watches are resurrected from life in the drawer into fully working condition is a very special moment for our customers and us as well.

We do not intend to sell SASM modules as original ones and we do not want to mislead customers in that they think they might buy an original module from the 1970s. StrikesAndSpares Semiconductor makes concentrated efforts on the development of modules with the goal of a worthy replacement for original movements in respect of the function and the look. We produce new modules with original components and the newest semiconductor technology and assemble exclusively by hand.

We hope, that you take much pleasure in your LED - watch with the expectation, that we could preserve one of your watches in working condition for ensuring ages.

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