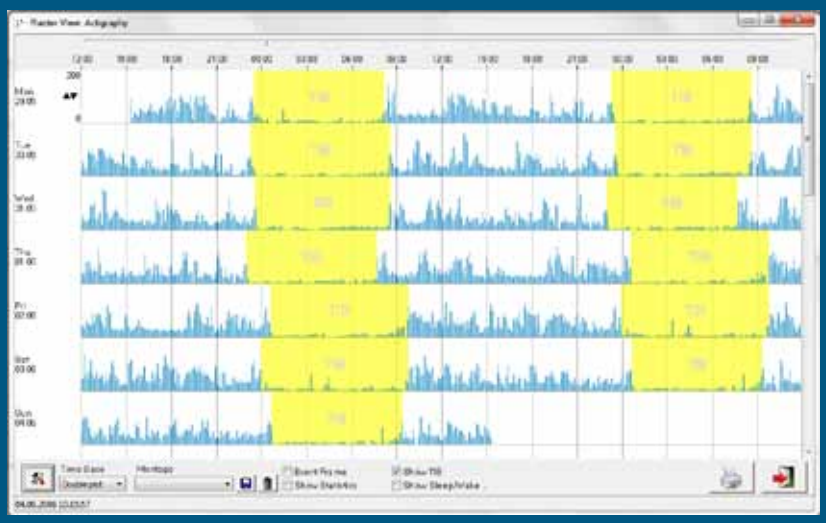
Actigraphy measurement

- Relaxation-Activity-Profile for determination of circadian rhythm
- Recording of the motor activity for:
  - Sleep-Wake-Estimation
  - ADHS Diagnostics
  - Training / Sport / Rehabilitation
  - PLM recorder
- Tremor-Analysis (determination of frequency via FFT)

SOMNOwatch™ plus Acti

- Recording time up to 15 days
- Storage of raw data with 128 Hz
- Easy handling for patient and physician
- Patient marker for identification of relevant events during recording
- Built-in sensor for ambient light and body position

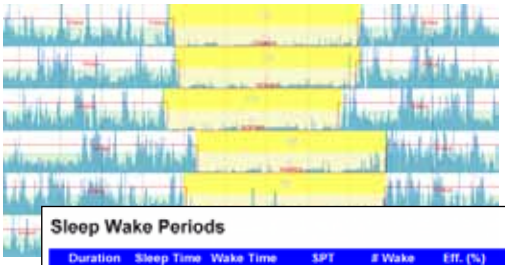


Sleep wake profile during 7 days

SOMNOwatch™ plus Acti

Recording of motor activity

Sleep/Wake estimation* and circadian rhythm

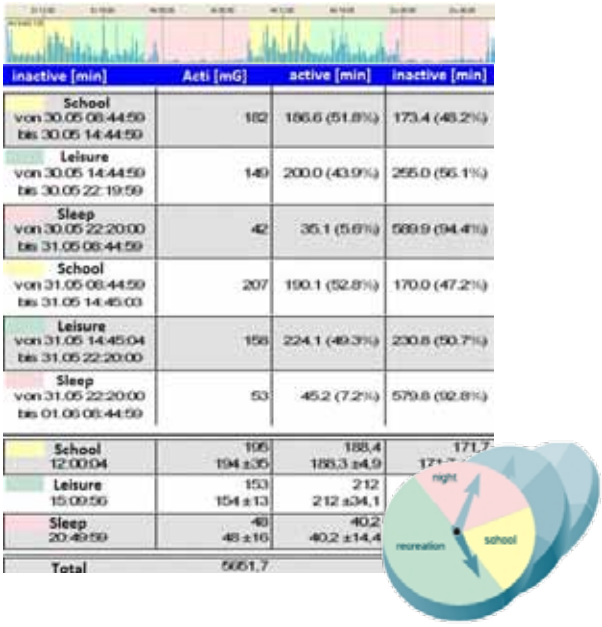


Sleep Wake Periods

Duration	Sleep Time	Wake Time	SPT	# Wake	Eff. (%)	Latency	WASO	MAI (/h)	Σ AKt. [mg]
1 TIB: from 31.01 21:02:33 to 01.02 08:58:44									
08:56:10	08:05:44	00:50:26	08:49:14	4 (0,5)	90,6	00:06:56	00:43:30	5,1	16085
2 TIB: from 01.02 21:59:33 to 02.02 06:12:03									
08:12:30	07:48:03	00:24:27	08:09:03	3 (0,4)	95,0	00:03:27	00:21:00	4,7	4925
3 TIB: from 02.02 22:39:03 to 03.02 07:48:02									
09:09:59	07:30:30	01:39:29	07:40:30	3 (0,4)	81,9	00:03:27	01:36:02	5,7	51700
4 TIB: from 03.02 22:54:33 to 04.02 07:52:03									
08:57:30	06:57:30	02:00:00	07:30:00	6 (0,9)	77,7	00:04:57	01:55:03	5,2	58050
5 TIB: from 04.02 22:45:33 to 05.02 09:23:33									
10:38:00	10:25:33	00:12:27	10:28:03	1 (0,1)	98,0	00:09:57	00:02:30	5,7	6380
6 TIB: from 05.02 23:12:03 to 06.02 09:35:32									
10:23:29	09:08:00	01:15:29	10:11:30	5 (0,5)	87,9	00:02:57	01:12:32	4,8	14984
7 TIB: from 06.02 22:05:03 to 07.02 07:49:03									
09:44:00	07:42:30	02:01:30	08:21:00	5 (0,6)	79,2	00:02:27	01:59:03	6,2	58400
Average - TIB									
09:25:57	08:13:58	01:11:58	08:44:11	3 (0,1)	87,2	00:04:52	01:07:05	5,3	30072

- For detection of Sleep/Wake-rhythm: Application to the non-dominant arm
- Recording of activity in epochs of 1- 120s and display in a actigraphy profile
- Determination of the relevant recording time and day/night with the built-in light sensor

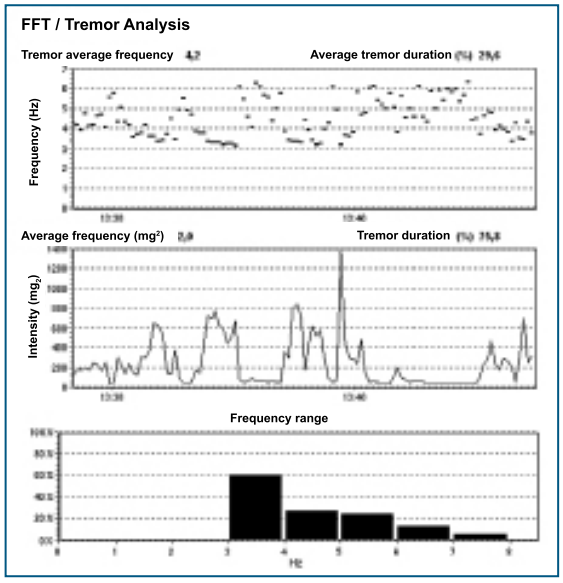
ADHS diagnostics

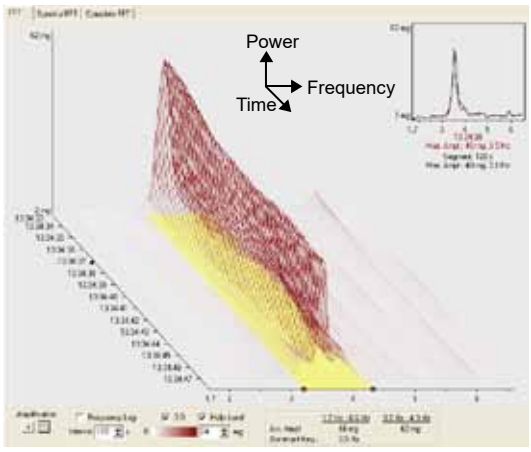


inactive [min]	Acti [mG]	active [min]	inactive [min]
School von 30.05 08:44:59 bis 30.05 14:44:59	182	186.6 (51.8%)	173.4 (48.2%)
Leisure von 30.05 14:44:59 bis 30.05 22:19:59	149	200.0 (43.9%)	255.0 (56.1%)
Sleep von 30.05 22:20:00 bis 31.05 08:44:59	42	35.1 (5.6%)	589.9 (94.4%)
School von 31.05 08:44:59 bis 31.05 14:45:03	207	190.1 (52.8%)	170.0 (47.2%)
Leisure von 31.05 14:45:04 bis 31.05 22:20:00	158	224.1 (49.3%)	230.8 (50.7%)
Sleep von 31.05 22:20:00 bis 01.06 08:44:59	53	45.2 (7.2%)	579.8 (92.8%)
School 12:00:04	195 194 ±35	188,4 188,3 ±4,9	171,7
Leisure 15:00:56	153 154 ±13	212 212 ±34,1	
Sleep 20:49:59	48 48 ±16	40,2 40,2 ±14,4	
Total	5651,7		

- For ADHS diagnostics pre-selected periods of time can be allocated to specific activities, such as school, breaks and recreation

Tremor Analysis





- Determination of low- and high frequency tremor and amplitude
- Graphic presentation of tremor frequency and intensity
- Calculation of average tremor frequency and duration
- Detailed display of frequency range (adjustable limits)

7 internal channels	
Body position, 3 activity sensors (x, y, z-axis, magnitude), ambient light, patient marker	
Data recording	
adjustable sampling rate up to 128/s, small file sizes thanks to compressed data storage	
Power supply	
Li-Ion battery, 630mAh, rechargeable	
Size and weight	
45 mm diameter x 16 mm (incl. battery), 30 g	
Device funnctions	
Recording duration up to 15 days	
Battery charging and data transfer via docking station	
programmable start and endtimes, delayed auto start	
splashproof	

* Dick, R., et al., AASM standards of practice compliant validation of actigraphic sleep analysis from SOMNOwatch versus polysomnographic sleep diagnostics shows high conformity also among subjects with sleep disordered breathing. Physiological measurement, 2010. 31(12): p. 1623-33.

Medical Devices for Sleep Diagnostics and Therapy
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