

DIAGNOSTICS

LÖWENSTEIN

medical

Guide for the Analysis of Polygraphic and Polysomnographic Measurements with MSV

REV 02, Mai 2023



DIAGNOSTICS

Dear Customers,

You have chosen a polygraphy or polysomnography device from Löwenstein Medical. Thank you for your trust in our product!

As a supplement to our briefing at your site or via the Internet, this guide should help you to analyze the poly(somno)graphic measurements with the software delivered with your device.

If you would like to have further consultation, please speak to your local Löwenstein employee or get in touch with us at info@loewensteinmedical.com.

Kind regards,

Your Löwenstein Team





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This guide contains step-by-step instructions on how to analyze the poly(somno)graphic measurements and generate related reports. In addition, the most important functions in the poly(somno)graphic analysis of the MSV software are explained.

1. Open the Software

Open the **MSV software** with a double click on the MSV icon.



2. Working Directory

All previously conducted and stored measurements can be found in the **Working Directory**. From there the measurements can be opened.

Open the working directory from the menu under **File – Open measurement** or click the symbol for the working directory in the software.

MSV	MiniScreen	Viewer (5.21b R	3)	
Fil	e Record	Measurement	Evaluate	Report
	Open n	neasurement	Strg+Alt	+V

The stored measurements can be viewed in the **Working Directory**. Information, which can be user-defined, is displayed for each measurement. In the example below, each recording includes the patient surname, first name, archive, date of birth, patient number, begin, validated, comment, measurement time and channel set. The information is sorted in the basic settings after the start (most recent measurement shown above).

To open a measurement, click on it and **Select** it in the footer or double click on the measurement.



There are two different ways to **select several measurements** at once.

- Activate Explorer in the footer.

Explorer

- With the Control key held down, mark individual measurements.

- With the Shift key held down, you can mark an entire range of measurements.

msv W	orking direct	ory								_		×
	Options M	easurement	een Date	n)BC Eallbairpia					26 CR of 222 8	20 GR free		_
C:VA_H	uben (b_kun	uen/2_minisci	een_Date	nieg_randerspie		D : Y		0,4	20 60 01 222,0			
_	Surname	First name	Arcn.	Date of Birth	Patient Number	Begin	vai.	Comment	Meas. Time	Channel set	video	
1.	PATIENT	12	-	12.07.1983		08.06.2021 22:30:01	X	Diagnostik / Hypo / RERA	08:00:00	PG-Standard		
2.	PATIENT	14	-	18.07.1972		17.05.2021 23:50:02		Diagnostik / OSAS / Schnarchen / Flattening	07:59:58	PG Standard		
3.	PATIENT	15	-	11.11.1962		20.04.2021 22:18:33	-	Diagnostik / OSAS	07:59:59			
4.	PATIENT	16	-	01.08.1949		19.07.2020 22:00:02	X	Diagnostik / schweres OSAS	07:59:58	PG Standard		
5.	PATIENT	13	-	17.08.1956		17.07.2020 22:00:02	X	Diagnostik / Mundatmung / ZA / OSAS	09:00:00	PG_Standard		
6.	PATIENT	17	-			25.03.2020 22:27:25	X	Diagnostik / GAs / OSAS	07:59:59			
7.	PATIENT	20	-	17.12.1975		10.03.2020 23:00:02	x	Diagnostik / POSA	07:06:52	PG Standard		
8.	PATIENT	19	-	25.03.1947		09.03.2020 21:30:39	X	Diagnostik / ZA / CSA	07:59:59			
9.	PATIENT	9	-	16.07.1975		21.11.2019 22:10:58	Х	Diagnostik / Schnarchen / Mundatmung	13:46:36	PG Therapie		
10.	PATIENT	3	-	13.05.1967		26.09.2019 22:00:04	X	Diagnostik / COPD	07:59:59	PG Therapie		
11.	PATIENT	4	-	01.12.1973		29.08.2019 22:00:03	X	Diagnostik / Mundatmung / POSA	07:59:59	PG Therapie		
12.	PATIENT	2	-	04.01.1933		25.07.2017 22:00:03	Х	Diag mit Sauerstoff / CSA	07:59:59	HuL Default MS 8/12		
13.	PATIENT	6	-	01.06.1951		14.02.2017 22:14:22	Х	Diagnostik / UARS	07:59:59	HuL Default MS 8/12		
14.	PATIENT	5	-	03.10.1956		12.01.2017 22:00:03	Х	Diagnostik / POSA / REM	07:59:59	HuL Default MS 8/12		
15.	Patient	10	-	13.07.1983		29.09.2016 22:00:03	Х	Diagnostik / UARS	07:59:59	HuL Default MS 8/12		
16.	PATIENT	18	-	28.09.1961		29.08.2016 22:30:02	-	Therapie / RERA / UARS	08:59:59	HuL Default P7		
17.	PATIENT	7	-	18.12.1950		12.01.2016 22:00:03	Х	Diagnostik / Schnarchen	07:59:59	HuL Default MS 8/12		
18.	PATIENT	8	-	02.09.1979		26.11.2015 22:00:03	Х	Diagnostik / Mundatmung / POSA	07:59:59	HuL Default MS 8/12		
19.	PATIENT	1	-	09.03.1965		02.07.2011 23:00:03	-	Diagnostik	06:59:59			
_			-									
Sur	name First n	ame	~			From - To All		×				
	Select	Cano	el	Backup	Explore	er Help						
1	9 (0)	Samoa					202106	09153815162 189254125.ohd				

You can change the sorting settings under **Options – Sorted by**.

MSV	Workin	g dire	ctory					
<u>F</u> ile	file Options Measurement							
C:\A		Sorte	ed by					Surname
1.		Colu	mns			÷		First name
2.	~	Shov	v validated	measureme	nts			Arch.
4.	~	 Show archive measurements 						Date of Birth
5. 6.	~	Shov	v content o	of backup in v	working directory			Patient Number
7.		Shov	v backup r	ecordings			~	Begin
9.		Back	un-DB			•		Val.
11.	PAI	IEINI	4		01.12.19/5			Comment
12.	PAT	IENT	2	-	04.01.1933			Meas, Time
13.	PAT	IENT	ь 5	-	01.06.1951 03.10.1956			
15.	Pat	ient	10	-	13.07.1983			Channel set
16.	PAT	IENT	18	-	28.09.1961			Video
17.	PAT	IENT	7	-	18.12.1950		_	

You can change the columns to be displayed under **Options – Columns.** With the Drag-and-Drop function, you can change the position of the column headings as you like.



e <u>O</u> p	otions M	easureme	nt						
VA_	Sorted	l by			→Ì		~		
1	Colun	nns			•	~	Surname		
2.	Show	validated	measureme	ents		~	First name		-
3. 4. 🗸	Show	archive m	easuremen	ts		~	Arch.		}
5. 6. 🗸	Show	content o	f backup in	working directory		~	Date of Birth	Ν	
7.	Show	backup re	cordings			~	Patient Number	15	
9.	Backu	n-DB			_	~	Begin		- {
11.	PATIENT	4		01.12.1975	_	~	Val.		
12. 13.	PATIENT	2 6	-	04.01.1933 01.06.1951		~	Comment		
14. 15	PATIENT	5	-	03.10.1956		~	Meas. Time		
16.	PATIENT	18	-	28.09.1961	. 1	~	Channel set		ĺ
17. 18.	PATIENT	8	-	02.09.1979	- 1	~	Video		5
19.	PATIENT	1	-	09.03.1965			File		
6					=		NHS No.		
Surna	ime First n	ame	~		-		Height		

Specific measurements can be retrieved via the **Search function** in the footer.

Surname First name	Y,		From	- To <mark>All</mark>	×
Surname First name Patient Number	Î	Backup	Explorer	Help	
NHS No. Comment Serial number Serial number Neurology	v			2021060	<u>19153815162_1892</u>

The Explorer function has to be activated in order to copy, move or delete measurements. Click the **Explorer** button in the footer.



With a **click of the right mouse key** on the selected measurement, you can copy, move or delete the measurement.

З.	PATIENT	15	- 11.11.1962 20	q.o
4.	PATIENT	16	- Copy	.0
5.	PATIENT	13		.0
6.	PATIENT	17	- Copy (without video)	.0
7.	PATIENT	20	•	.0
8.	PATIENT	19	Move	.0
9.	PATIENT	9	- Edit quick accord	.1
10.	PATIENT	3	- Edit quick access	.0
11.	PATIENT	4	- X Delete	.0
12.	PATIENT	2		.0
13.	PATIENT	6	- Delete raw video(s)	.0
14.	PATIENT	5	-	.0
15.	Patient	10	- Use patient data	.0
16.	PATIENT	18	-	.0
17.	PATIENT	7	 Combine measurements 	.0
18.	PATIENT	8	- 02.03.1313 2	J.1

3. Displaying Measurements

The desired measurement opens in a **preset view** at the start of the measurement.

Her MiniScreen Viewer (5.21	ib R3)							-	σ×
File Record Measurem	ent Evaluate Report View Video Op	tions Help		durated at 1	a 53				~
M-Row 31:			· · · · · · · · · · · · · · · · · · ·	sustandard				and the dealers without the second second second	^
M-5pO2 ==	a training interact and the California in		kall terlikile in in never inden del de la la se Hili din den dile sin belan terdier terdier			a Ultra da cita ta constituto tinti Libri			nautte t
M-Storing			an a	فالمتعادية المتحاصية والمحاصرة	lis balan di Jawa Kasa	h.	والطوار وراب	dala s maio adlisadamiliki	
Lage	Sup Sup Sup Sup Sup Sup	Sup Sup Sup Sup Sup Sup Su	p Sup Sup Sup Sup	te Le Sup Sup Sup	Sup Sup Sup Sup Sup	Sup Sup Sup Sup Sup	Sup Sup Sup Sup Sup Sup	Sup Sup Sup Sup Sup Sup Sup	ap Sup Sup
ri	р			Λ. Α	•	D 0 40	1.0		
AHI: 66.0	mullipp	MMM	MMUL	When	mmmm		N		≝ W
Thorax	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~M	Man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www	·····	Mmm	hm
Abdomen	MMMMM	wwww	MMW	MM	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-MMM	MMM	~MM~~	M
SpO2 90 ODI: 82.0 75 60	92 92 92 92 93 94 91 5	91 94 94 93 92 89 9 DS DS DS	0 93 95 92 89 91 DS	94 93 94 94 94 94	94 94 93 91 91 90	89 90 BS 83 8	96 95 94 92 92 91 31	88 92 95 92 86 85 93	96 95 DS
Pulse									
90.52	90 89 87 88 87 86 87	86 85 83 84 86 87 8	7 85 84 86 88 89	90 ^{°V94} 92 87 87 87	86 85 85 86 86 88	88 86 86 91 89 8	36 78 80 83 85 85 8 <u>7</u> 8	7 84 85 86 87 82 80	79 7 <mark>8</mark> 4
Lage Pro									
Sup R Up	Sup Sup Sup Sup	Sup Sup Sup Sup	Sup-Sup-Sup-Sup-Sup-Sup-Sup-Sup-Sup-Sup-	SupSupSupSu	oSupSupSup	SupSupSupS	up Sup Sup Sup Sup Sup	p Sup Sup Sup Sup Sup Sup	iupSup
Snoring				r p.					J .
Pressure									
	2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 2 2 2 2 2 2 2 2	2 2 2 3 3 3 3 3 3	333333333	3 3 3 3 3 3 3 3 3	3 3 3 3 3 3 3 3 4 4	4 4 4 4 4 4 4 4 4	4 4 4
Zoom: 5 Min	23:00:03 23:00:33	23:01:03	23:01:33	23:02:03	23:02:33 2	3:03:03 23:	03:33 23:04:03	23:04:33	23:05:03

The view consists of **two separate windows**. The upper window is an overview based on the entire measurement time.

In this example the results are displayed for channels Flow, SpO_2 , snoring and position in relation to each other.

M-Row	II.	l in Geninstenhilt skildlitte og i skalet i s					
M-SpO2			()	al manine in a sold as the desident	na station and income a filling high filling the	an a	in an
M-Snoring							1 16
Lage	Sup	Sap Sap Sap Sap Sap Sap Sap Sap	te Le Sup Sup Sup Sup Sup	ap Sap Sap Sap Sap Sap Sap	Sap Sap Sap Sap Sap Sap	Sdp Sup Sup Sup Sup Sup Sup Sup Sup Sup Su	Sap::::Sap Sup
	00:00	01:00	00:50	03:00	04:00	05:00	06

The **channel names** Flow, SpO_2 and Snoring are shown on the left side, starting with the initial **M**.

In this case, **M** stands **for Marking** or Event. In this example, **M-Flow** means that all the analyzed respiratory events in the flow channel are entered vertically according to their event color.

M-Flow	30 s



The lower **main window** is displayed with 5-minute intervals. The time basis can be changed with a mouse click on the turquoise **Zoom field**.

Zoom: 5 min	SpO2	on
200111.5 1111	ODI: 82,0	Center
		General view
	Pulse	30 Sec
		1 Min
		2 Min
	Lage	🗸 5 Min
	5	, 10 Min
		20 Min D.
	Sporing	30 Min
	Shoring	1 Hrs
		2 Hrs
	Deserves	4 Hrs
	Pressure	6 Hrs
		8 Hrs
		12 Hrs 2
	Zoom: 5 Min	23.00.03

The **channel names** are shown on the left-hand side of the screen. In the channels Flow and SpO_2 we can see a live calculation of the AHI and EI indices.



The **footer** contains the information Patient name, measurement Date, Channel set and File.

Patient: PG_Schulung_obstr., Date: 01.07.2009 Channel set:

File: demo004.ohd

When you click on the **channel name** with the right mouse key, the following menu opens up. Here the channels can be hidden, the range automatically adapted to the channel borders (best-fit function) and grids, numerics and colors changed. These changes apply for as long as the measurement is open. The changes are not stored.

Snc 3	Hide channel
	Range
Pressure	Adapt range to current section
	Numeric output
	Grid
Zoom:	Colours •

When you position the **mouse cursor** on the **channel** name, an interactive menu appears.



The following settings can be made in this menu:



Each **channel** can be moved in its position with the **drag-and-drop** function. To do so, click the channel name with the left mouse key and, holding down the mouse key, move to the desired position and let go of the mouse key.





The two windows are **separated** from each other by a **variable bar**. The size of the windows can be varied as described below.

The cursor is positioned on the bar until it changes to a black block with two files pointing upwards and downwards. Press down and hold the left mouse key. Move the cursor vertically to resize the window.

The **two blue arrows** show the displayed area in the main window.

Position	Υς sup <u>15 Sup S</u> up Sup S	Տսբ ։ ։ Տսբ ։ ։ Տսբ ։ ։
	0:00	01:00
Flow AHI: 66,0	MMMMMMM	MAA

The **preset view** is shown in the menu. Other stored views can be retrieved via the dropdown menu function.

PG Standard V	PG_Standard \sim
	Strg+5 Trend All Data
	Cardio-View
	PG_Advanced
	Print
	Respiration
	Tablet 🗸

With a click of the right mouse key you can open the following menu in the large main window. There you can select and de-select channels in a list under **Channel selection**.





If views have been changed individually, (hiding, adding or moving channels, changing colors), these changes can be saved in the menu under **View – View – Save current screen as view.**



The existing flow can be overwritten or a new view can be created by changing the **file name**.

Dateiname:	PG_Standard.view
Dateityp:	View (*.view)

After restarting the software, a newly created view is listed in the dropdown menu and is therefore available for selection

PG_Standard	~
Strg+4 Rohdaten Strg+5 Trend Drucken	^
Kardio-View PG Erweitert	
PG_Standard 🔗 Tablet	



If a certain view shall always be loaded directly when opening a recording, this can be set as a default. To do this select in the menu bar the point **View** – **View** – **Select as default** and choose the desired function (Evaluation PG, Evaluation PSG, Sleep stage validation, Online recording) and then activate the corresponding view.



To set view settings for specific channels such as colors, area to be displayed, curve values etc. globally for all views, select in the menu bar **View – View settings** and then **Basic view** settings. These settings can be made for each channel in this menu. Changes must be confirmed with **Save** and are applied to all views directly

MSV View Settings		_ 🗆 X
View Editor View group editor	Basic view settings General Settings	
Channel settings	Colour settings	Grid
All channels	A Channel colour	Auto. grids
Abdomen		
AbdomenRIP		
Actimeter 1	Background colour	
Actimeter 2		0 %(Dgts)
Analog		
Apneas		
Arousal	Background color all	
Autom. Hypnogram		Line Scale
BR-Abdomen		
Breathing	Height	
BR-E-Flow	5 🖶 Height units	
BR-Flow		
BR-Therm.	Display area	
BR-Thorax		
C3/M2	85	
C4/M1		
Central Apnea		
Central Hypopnea	15	
CSB	0%(Dgts)	
ECG		
ECG1		
ECG2	V	Save
L FCG3		
OK Ca	Icel Help	



In all channels in which events can be assigned, these can be automatically hidden from a self-selected zoom level in order to have a better overview at larger zoom levels.

This can be set in the menu under **View – View – View settings – Basic View** settings under *Show markings up to*.

In the example shown below, markers (events) are no longer displayed in the channel at a zoom level greater than 4 hours.

This is displayed in the channel designation with a gray square crossed out in red.

Markings	Flow
Show markings up to	AHI: 3.0
4 Hrs 🗸	

The **time and epoch bar** displayed at the bottom of the data window can be **hidden or shown** using the keyboard shortcut **Ctrl + Y**.

This can be an advantage for better clarity, especially when using the SplitScreen View.



The so-called **value cursor** can be called up using the key combination **Ctrl + V**, or alternatively via the menu item **View – Cursor – Value cursor**.

This displays all numerical values at the cursor position in a vertical reference and changes them automatically when the cursor position changes horizontally.

View	Options Help]	5	2	<u></u>	~~	h	بالمرالم	n.n.n.	2.2.
	View		🛷 尔 🏠 泣			v		r	<u>ן</u>			, v
	Configuration of markings		M		\sim	V	V	\sim	P	$\gamma\gamma\gamma$		m
	Marking size large				~	~	~~	~~~	H	ypnogr. ow	N2 -6 Vm	~~~
	Vertical Grid								P	hase shift nO2	0 95 %	
	Show channel only in channel range	∙⊨	23:00						P	ulse osition	57 /min Ri	
	Numeric curve values	•			95	95	95	95	95 P H	FT F Cent. ruck	242 msec 59 6 cmH20	95 9
-\$-	Cursor	 ✓ 	Standard		57	57	57	57	LA	eckage ZV	1 Vmin 353 ml	57 4
	Battery level		Vertical Line						2		0;	
	Online	•	Crosslines			- 14		. 141.	R		KI.	141
	Visual Filter		Value cursor Ctrl+V			· •						

It is possible to move curves beyond their channel bounderies, e.g. to place the Thorax and Abdomen curve on top of each other to better detect paradoxical or opposing breathing efforts.

The basic requirement for this is that under **View – Show channel only in channel range – All channels except EEG/EOG** is deactivated. By means of the

function to move channels vertically (function via channel name, See

Т

page 9) or to move the channel vertically using the key function **Ctrl + Shift + pressed left mouse button.**

View Options Help	
View 🕨 🎽 🛷 🐨 🔐 🔛 🔛	
Configuration of markings	
Marking size large	
Vertical Grid	
Show channel only in channel range EEG / EOG	
Numeric curve values All channels except EEG / EOG	
	W
Abdomen	
(((14	

There is the possibility to open a **List of events**. Select therefore Measurement – List of events in the menu bar. In this, all the events that have occurred are listed chronologically by type. By double-clicking on an event, the software automatically jumps to the corresponding event in the measurement.

Measurement		Evaluate	Report	View	Optic				
	Measurement Validated								
	Patient data								
	Measurement beginning								
	Measurement Information								
	List of Comments								
	List of ev	ents		Ctrl+F	11				
Ω	Impedan	ce	N						

MSV Lis	t of events				_ □	x
File (Options					
Type	Event	Stage	Time	Duration	Position	Va ^
	Mixed Apnea	N2	11.10.2022 01:38:36	26,6	Position Supine	n
	Mixed Apnea	Awake	11.10.2022 02:44:41	17,6	Position Supine	n
	Mixed Apnea	Awake	11.10.2022 03:08:31	13,0	Position Supine	n
	Mixed Apnea	Awake	11.10.2022 04:44:29	10,7	Position Supine	n
	Mixed Apnea	REM	11.10.2022 04:45:54	28,7	Position Supine	n
	Obstructive Apnea	Awake	11.10.2022 04:22:43	19,5	Position Right	n
	RERA	Awake	10.10.2022 23:04:06	13,4	Position Supine	n
	Irregular Snoring	N1	11.10.2022 02:43:33	0,8	Position Supine	n
	Irregular Snoring	N1	11.10.2022 03:26:16	0,4	Position Supine	n
	Irregular Snoring	N1	11.10.2022 03:26:27	0,4	Position Supine	n
	Irregular Snoring	N1	11.10.2022 03:26:41	0,2	Position Supine	n
	Irregular Snoring	N1	11.10.2022 03:26:43	0,5	Position Supine	n
	Irregular Snoring	N1	11.10.2022 03:26:51	6,2	Position Supine	n
	Irregular Snoring	REM	11.10.2022 04:46:50	0,3	Position Supine	n
	Snoring	Awake	10.10.2022 21:50:38	0,3	Position Supine	n
	Snoring	Awake	10.10.2022 21:50:44	0,6	Position Supine	n
	Snoring	Awake	10.10.2022 21:51:46	1,1	Position Supine	n Y
<		I	I			>
	OK Refresh	Pi	rint / PDF	Double-click (Launch "Conf	on list entry: irm Events"	

The positioning of the event list window can be selected under **Options – Arrangements.**

The list can be exported to an Excel-format under File – Export list (cvs).

C	Options				File	
	Selection of events		ge	Time		
	Summarize	>	I	11.10.2022 01:38:3		F
$\left[\right]$	Arrangement	>		Left		P
	Key index		\checkmark	Above		E
	Mixed Apnea	R		Covering		
	Obstructive Apnea	Av				

File	Options
	Refresh
	Print / PDF
	Export list (csv) 🔓



4. Analysis of a Measurement (PG)

Right after a measurement has been read from the poly(somno)graph device, it will be pre-analyzed by the software. Then the software makes suggestions for events in the channels Flow, SpO₂, Snoring, Pulse and, if applicable, pulse wave.

The following **respiratory events** in the **Flow channel** are pre-analyzed.

- Central, Obstructive and Mixed Apnea



- Hypopnea (settable: distinction between Central and Obstructive)



- (settable) RERA



- Cheyne-Stokes Respiration



The analysis of **desaturation** is made in the **SpO2 channel**.



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Snoring events are detected in the Snoring channel.



An analysis of **Pulse variances** is made in the **Pulse channel**.



Pre-analyzed events can be **processed** as follows:

Events can be deleted.

- Click the event with the right mouse key and select **Delete**.



- Position the mouse cursor on the event and press the **DEL key** on the keyboard.



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Events which have been assigned by the **automatic analysis** can be distinguished from those that are assigned **manually**. In the example below, the I eft event was marked by the automatic analysis and the one on the right by a manual process. In the manual event, you can see a small square in its complementary color at the end.



To **mark an event**, place the cursor at the beginning of the event and hold down the left mouse key. Now the cursor can be drawn over the event to the end.

Ņ	Channel:	Flow
	Time:	01:06:14
A	Length of Marki	ng: 16,2Sec 🏅
		U
	8 V N N N	×

When you **let go of the mouse key**, a context menu opens up. The content of the menu depends on the channel in which the event was marked. In the example below, the flow channel is selected. The **context menu** contains a list of **events** that can be marked in the channel.



Here the desired event can be clicked and it will be marked in the corresponding channel. In the context menu the shortcut key associated with the event is marked on the keyboard.

When the corresponding letter is part of the event name, that letter is underlined. **Example:** <u>O</u> **in Obstructive Apnea.**

When the corresponding letter is not part of the event name, that letter is displayed and underlined after the event name. **Example:** <u>K</u> after Central Apnea.



Use the Page up and Page down keys on the keyboard to **leaf through** the **measurement**. Each press of the key moves one zoom step forwards or backwards. Example: when the zoom is set to 5 (five) minutes, the measurement moves in five-minute increments.



You can use the left and right **cursor keys** to move the measurement onehalf the width of the screen.



To go to the start of the measurement, press the **home** key. With the **end** key, you can jump to the end of the measurement.





The **Quick Mode** can be used to make the analysis faster and easier. Select the following symbol from the menu to activate it.



With **Quick Mode** activated, the **following** can be done more quickly.

- **Delete events** simply with the right mouse key.

- When you are **marking events**, no context menu appears when only one event can be entered in the selected channel.

- **Quick Scoring function** for **respiratory events** over the Thorax and Abdomen channels. Respiratory events occurring in the Flow channel can be marked in parallel in the Thorax and Abdomen channel for the marked period. In the default setting, events are marked directly in Thorax (hypopnea) and Abdomen (obstructive apnea) for occurrences in the Flow channel.

The default setting can be changed in the One-Click-Mode.



In **One-Click-Mode** you can set the length and type for pre-defined events in the corresponding channel with a mouse click.





The **length** and **type of an event**, which depend on the channel in question, can be defined in the **interaction panel** on the **right edge of the screen**. With the right mouse key, click on the field at the end of the channel and then define length and type.

95 95 90 88 894 86	95 93 87 87 DS	Desaturation
One Click Editor	x	\square
Settings for: SpO2 Desaturation V Event 5 Sec	Position (general valid) Start Middle End	Pulse variand 10 Sek
DK Cancel		1 Sek

A **black marking** appears on the cursor that depicts the length of the event. With a click of the left mouse key, you can set the event directly in the relevant channel.



The Quick mode and the One-Click mode can be used together.

You can set a **comment** with the right mouse key in the main window. Select **Set comment** in the context menu or by pressing the **Ctrl key + Space bar** at the same time. In the Set comment window you can define text blocks to be stored.

	Light off		Set comment		
);	Light on		Attributes:		Text storage
	Zoom	•	Time: 01:04:31 Text (max. 255 char.):	00	F1: TextBaustein 1 F2: TextBaustein 2 F3: TextBaustein 3
	Channel selection		Pressure up		F4: TextBaustein 4 F5: TextBaustein 5
ŀ	Set evaluation period		Remark: Existing evaluation periods and	l comments	F6: TextBaustein 6 F7: TextBaustein 7 F8: TextBaustein 8
	Log pressure setting		can be edited or deleted by clic	king the	F9: TextBaustein 9
1	Set comment	D.	coloured triangle or ellipse in th of the raw data screen	he general view	F10: TextBaustein 10 F11: TextBaustein 11 F12: TextBaustein 12
\searrow	Insert Biosignal Calibration	•			readbuilten 12
	Edit text events		OK Cancel		Edit the text storag



It can happen that the flow signal gets lost (e.g., patient movement) during a recording even in the case of unattended studies. MSV offers a feature to **recalculate the flow** signal for those cases. The **E-Flow** can be recalculated in the following way.

- 1. Open the dedicated measurement in MSV.
- 2. Choose Evaluate New creation of channels in the menu bar.

Evalu	ate Report View Options Help)	
	Reanalysis	•	🕴 🌩 🛬 🗇 🏠 🔂
*	Manual Sleeping Stage Validation	Ctrl+M	adimental de taban di matadi mana abada
	Confirm events	,	
	Go to	Ctrl+G	
	New creation of channels	•	Breathing Rate
	Evaluation Pulse	•	Phase shift (Thorax/Abdomen)
	Pressure analysis	•	E-Flow
	Define Evaluation Type	•	Central heart frequency
	Special Evaluations	•	RRsys •
	Define "Light off" / "Light on"		, IAM MAN MAN

The **software creates** the channels **E-Flow and shows** it in the recording **automatically.** This channel can be used for manual scoring directly. If there shall be a Reanalysis (automatic analysis) done, the following steps are mandatory.

E-Flow AHI: 0,0	mmm
Flow AHI: 0,0	
Thorax	rmm
Abdomen	mmm

3. Choose Evaluate – Define Evaluation Type – E-Flow from menu bar.

Evalua	te Report View Options Help	
	Reanalysis	> 🕴 🌩 🚎 🛷 🏠
*	Manual Sleeping Stage Validation Ctrl+M	л
	Confirm events	•
	Go to Ctrl+G	G
	New creation of channels	• SupSupRiRi
	Evaluation Pulse	• 01:00
	Pressure analysis	. mmm
	Define Evaluation Type	E-Flow
	Special Evaluations	► Flow
	Define "Light off" / "Light on"	prisma Resp. flow





Select all **events** in the appearing window, which **shall be analyzed** in the channel **E-Flow** and confirm with OK.

Define Evaluation Type	x
Channel E-Flow Following events should be detected during automatic event detection (Settings only for actual measurement): Apnea Hypopnea	
✓ CSB ✓ RERA	
Attention: Changes will be not affected until selection of menu it "Evaluate / Reanalysis"!	em
OK Cancel	

4. Choose Evaluate – Reanalysis – E-Flow form menu bar.

An automatic reanalysis is done in E-Flow. All detected events are scored in the channel and are used for reporting.

Evalu	ate Rep	ort Viev	w Video	Options	Help		
	Reanalys	is			•	All	
*	Manual 9	leeping S	Stage Valid	ation (Ctrl+M	E-Flow	

E-Flow AHI: 41,0	A MA A MA A A A A A A A A A A A A A A A
Thorax	
Abdomen	Munimum MM

23

If a **certain area** in a measurement is to be **completely excluded** from the **analysis** (consideration in the report as well), this can be done using **Analysis exclusion**.

To do this, **mark the desired area** in any channel with the **left mouse button** pressed completely and when you release the mouse button select **Analysis exclusion** in the apearing context menu.

Hypnogr.	Avents	REM	REM	REM	REM	REM	REM	REM	REM	REM	REM
Arousal											
Flow AHI: 27,9		www	mm	m	m	$\sim\sim\sim\sim$	MMM	mm	m	mm	m
Thorax		ΛΛΛΛΛ	<u> </u>	<u>, , , , , , , , , , , , , , , , , , , </u>	<u> </u>			Δ		<u> </u>	
Abdomen		WW	mm	www	mm	MMM	www		www	NNNN	Zoom In Dejete
SpO2 OD# 27,2	90 75 60	95 95 95 94	93 93 94 93 92	92 93 91 91 90 89	90 92 92 91 90 88	88 89 89 89 89 89	89 88 86 86 89 9	1 93 91 90 92 92	93 94 94 93 92 91	89 189 93 93	<u>C</u> ancel

The marked, selected area is shaded in gray. **All events** within the **gray marking area** and the **marked period** are **ignored for the anaysis** (not considered in the report).

Hypnogr.	Avata					1	ALL ME DO TO	1	
	ND		<u>↓↓</u> · · · · · · · · · · · · · · · · · ·	Ľ		1			
	-	11.05	11-00	20.00		5149	01-00	2420	22.05
Huttoor		22100	2100	00100		0200	6300	9400	90129
	RE	M REM	REM	REM	REM	REM	REM REM	REM	AW AW
Arousal									
							12		Arres
Flow					. Alan A.	V		. 1.1	A A A A A A A A A A A A A A A A A A A
AHI: 27,7	m	mann	man	m	WWWW	VVVVVV	A WWWWWWWWW	Mamil	WWW
Thorax									A A A A A A A A A A A
	MAAA	~~~~~~~~~	~~~~~~~~	144444	AAAAAAAA	~~~~~~~~~	<u> </u>	AMMAMAMAA.	AAAAA MAMAMA
Abdomen	A AA	ANAAAAAAAAA	AAAAAAAAAA	AAAAA	AAAAAAAA	AAAAAAAA	NANAAAAAAAAA	NAMANANAN	AAAAAAA AA AI
	AAAA	****	V V V V V V V V V V V V V V V V V V V	/ / / / / / /	VVVVVVVVV	VVVVVVVVV	(V V V V V V V V V V V	VVVVVVVVVV
SpO2 OD: 27,0	90 94 93	92 92 93 92 91 90 ps	91 93 92 90 88 88 90	5 90 89 89	91 88 87 DS 88 90	93 91 90 91 92 93 94	94 93 91 92 89 89 05 92	93 94 94 94 95 94 94	92 93 92 93 91 92 92 92
	60			3					
Pulse									
	8 64 64	0/ 0/ 02 00 0/ 09 09	10 09 61 61 61 68 61 69	69 68 67 68	69 69 11 12 10 13	13 14 13 13 13 13 12 12	11 Pa Pa Pa Pa Pa Pa 11	12 11 69 65 68 67 68	68 68 69 67 70 71 77 70
Position	Pro Le Sup								
	Up Sup	sup Sup Sup Sup Su	p Sup Sup Sup Sup	Sup Sup Sup	Sup Sup Sup :	sup Sup Sup Sup	Sup Sup Sup Sup Sup	Sup Sup Sup Sup	Sup Sup Sup Sup Sup
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Microprione		*****					******		***
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In order to **exclude a certain period** of time **from** the **analysis** at the beginning and/or at the end of the measurement, the markers **Light off** and **Light on** can be set. This can be done in PG as in PSG measurements. The analysis time period will be specified as real patient recording time.

To select Light off or Light on, click with the **right mouse button** in one of the raw data windows and **choose Light off** or **Light on** from the context menu.



The defined "Light on" periods are shaded in gray. **All events** within the **gray marking area** and the **marked period** are **ignored for the anaysis** (not considered in the report). The period between Light off and Light on is defined as "Time in Bed" in MSV.



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5. Analysis of Sleep Stages and Arousal (PSG)

It is necessary to activate the Manual Sleeping Stage Validation to score sleep stages manually. Choose this from menu bar **Evaluate - Manual Sleeping Stage Validation** or directly in the icon bar.

Evaluate	Report	View	Video	Options	Help				
R	analysis				•				
* N	Manual Sleeping Stage Validation Ctrl+M								
с	onfirm eve	nts		~	+				

The **menu bar** changes the look-and-feel to the **needs of sleep stage scoring automatically.** Recognizable by the **red STOP sign** in the left upper corner. The visualization changes to the Neuro-View automatically too.

MSV N	/liniScreen Viewer (5.23)			
File	Record Measurement	Evaluate Report View Video	Options Help	
STOP	💥 🜆 🔽 🕅	iii = + + + + + + + + + + + + + + + + +	🗏 🕀 👫 🌲 🐳 🎓 🏟 💁 🔐 🗈 🔂 🔝 🔽 Ctrl+3 Neuro-View 🗸	

Clicking on the **icon keyboard** layout (2nd icon from left) opens a window in which an **overview of the assigned sleep stages** for the current period is displayed. In addition, the **assignment** of the **shortcut keys** for the sleep stage evaluation can be viewed.



In the window shown above, epoch 66 in the middle is the one that currently can be edited in the software. The **epoch bar** shows **eight epochs** each in the previous and subsequent **time history**.

By selecting a **shortcut** on the keyboard for assigning sleep stages, the software **automatically jumps** on epoch forward and classifies the current one depending on selection. The software remembers the epoch in which the last manual selection was made. With the button **Continue at epoch**, it is possible to jump to this epoch later in a targeted manner.

The neurological window can be compressed individually using the third symbol from the left, **30 seconds = 30 cm**. This is an advantage when using very wide monitors, so that an epoch isn't displayed too stretched out. With a click of the right mouse button, the set width can be saved permanently.



The **75µV reference lines** can be shown and hidden using the fourth symbol from the left. These can be seen as dashed lines in the EEG channels.

27



F3/A2	-37,5 - Ann A Mundhull so A and an
	37,5
F4/A1	-37,5 M A M A M A A A A
	37,5
C3/A2*	-37,5 A & A & C A & C & C & C & A MALAA & A
	37,5
C4/A1	-37,5
	37,5
01/A2	-37,5
	37,5
O2/A1	-37,5
	37,5



EEG frequencies can be shown as a **Frequency Spectrum**. To do this, mark the desired EEG area with the left mouse button pressed and than select Frequency Spectrum from the popping up menu.



In the window that appears, a distribution of the frequency of frequencies in the selected area is shown.





When **drawing in arousal**, you have the following options to choose from.

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	Ar <u>o</u> usal (automatic differentiated)
	Arousal (spontaneous) 5
··········	A <u>r</u> ousal (respiratory)
	Arousal (<u>m</u> ovement)
	Arousal (s <u>n</u> oring)
-land	Artifact
Y Y	Anal <u>y</u> sis exclusion -
	Zoom In
	Frequency Spectrum
	De <u>l</u> ete
\sim	Cancel

Arousal (automatic differentiated). The software analysis whether a **respiratory, movement** or **snoring** event occurs in temporal relation to the **arousal.** If this is the case, the software automatically classifies the arousal as a respiratory, movement or snoring arousal. The temporal relation can be influenced via analysis criteria. If no associated event is apparent, the **arousal** is considered **spontaneous**.

Alternatively, the four arousal types can be selected manually in the menu.

To **exit** the **manual sleep stage mode**, either press the **Stop icon** in the top left corner or press the key E on the keyboard. The menu bar switches back to the normal display mode automatically and the previously selected view is loaded.





6. Report Generation

To generate a report for analyzed measurements, select **Report – Report** in the menu or click on the following symbol in the menu.

Report View Video Option			
 <u>11</u> - F	leport		
 F	leport N	ISLT	~
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The list that opens contains a variety of **report templates**. Open the template you want to use with a double click.



Bit Comme Update region Ausgewertet mit. Version 5.21bPrev. 10 20210930 Polygraphy Report Findings Findings: Findings: Findings: Findings: Findings: Findings: Findings: Findings: Att: 65,7 Per hour	Hill Report-Builder - [Unnar File View	med.FGR*] - Report template: PG_Standard_1.20.FGR						
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AHI 10 20 30 40 50 60 70 I.) Respiratory evaluation (Apneas/Hypopneas) AHI (Desat-Cor.) [Per hour] 65,7 (63,6) Phase shift (Thorax/Abdomen) Findings AHI (Desat-Cor.) [Per hour] 65,7 (63,6) Mumber [n] 813 Apnea Index AI (Desat-Cor.) [Per hour] 662,7 (63,6) Mumber [n] 813 No. of Apnea [n] 623,4 (3,4) Mumber [n] 116,1 (108,9) No. of Apnea [n] 3,4 (3,4) Mumber [n] 116,1 (108,9) No. of Apnea [n] 24 24 24 74 No. of Apnea [n] 24 24 24 24 No. of Apnea [n] 24 300.51 25	- - - - -	Findings: Severe sleep apnea syndro Valuation basis (AH): 5-15: Slight skep apnea syndrome 15-30; Moderat sleep apnea syndrome > 30: Severe sleep apnea syndrome	me				AHI: 65.7 Per ho	our
Provide Provide 1) Respiratory evaluation (Apneas/Hypopneas) Respiratory evaluation Findings AHI (Desat-Cor.) [Per hour] 65,7 (63,6) Appea Index AI (Desat-Cor.) [Per hour] 65,7 (63,6) Hypopnea Index AI (Desat-Cor.) [Per hour] 62,3 (63,6) No. of Apnea Index AI (Desat-Cor.) [Per hour] 3,4 (3,4) No. of Apnea Index AI (Desat-Cor.) [Per hour] 3,4 (3,4) No. of Apnea Information (RDT) [Pris] 23 No. of Apnea Information (RDT) [Pris] 3:30.51 Apneas (Apnea Information (RDT) [Pris] 3:30.51 Apneas (Apnea Information (RDT) [Pris] 3:30.51 Apneas (Apnea Information (RDT) [Pris] 1:48 No. get Apneas (Apnea Information (RDT) [Pris] 1:48 Apneas (Apneas (Apnea Information (RDT) [Pris] 1:48	- - -	AHI 10	20	30	40	50	60	70
Respiratory evaluation Findings AHI (Desat-Cor.)[Per hour] 65,7 (63,6) RDI (Desat-Cor.)[Per hour] 65,7 (63,6) Apnea Index AI (Desat-Cor.) [Per hour] 65,7 (63,6) Mo of Apnea [n] 65,7 (63,6) No. of Apnea [n] 3,4 (3,4) No. of Apnea [n] 436 Of them Central: [n] 1 Maan duration of apneas [Sec] 26 No. of Apnea [n] 24 Total Apnea [n] 2330.51 Apneas Apneas [Min] (Fe042655) 146 Longest Apnea [Min] (Fe042655) 146	- 	1.) Respiratory evaluation (Apneas/Hypopne	eas)				
AHI (Desat-Cor.)[Per hour] 65.7 (63.6) Number (n) 813 RDI (Desat-Cor.) [Per hour] 65.7 (63.6) Number (n) 65.7 (63.6) Apnea Index AI (Desat-Cor.) [Per hour] 62.3 (63.6) Index Share [%] 55.0 Hypopnea Index HI (Desat-Cor.) [Per hour] 3.4 (3.4) 116.1 (106.9) 116.1 (106.9) No. of Apnea Inj 436 0 Phase shift distribution (Thorax/Abdomen) Of them Central: [n] 1 1 9% Evaluation time No. of Apnea Inj 24 24 7 Total Apnea / Hypopnea time (RDT) [Hrs] 3:30.51 3:30.51 Apneas Apneas (Ninj (I=042.65.59) 1:46 4 Longest Apnea (Ninj (I=042.65.59) 1:46 4	1	Respiratory evaluation		Findings	Phase shift (Tho	rax/Abdomen)	Findir	nas
RDI (Desat-Cor.) [Per hour] 65,7 (63,6) Time Share [%] 55,0 Apnea Index AI (Desat-Cor.) [Per hour] 62,3 (63,6) Index Per hour (Index Des-Correl.) 116,1 (108,9) Hypopnea Index AI (Desat-Cor.) [Per hour] 3,4 (3,4) 116,1 (108,9) 116,1 (108,9) No. of Apnea [n] 436 Phase shift distribution (Thorax/Abdomen) 9% Evaluation time No. of Apnea [n] 28 10% Phase shift distribution (Thorax/Abdomen) Of them Central: [n] 12 116,1 (108,9) No. of Apnea [n] 24 10% 10% Total Apnea / Hypopnea time (Min Per hour] 3:30:51 14% Apnea / Hypopnea time (Index Per hour) 3:46 16% Longest Apnea Mini (Index 200 con	-	AHI (DesatCor.)[Per hour]		65,7 (63,6)	Number [n]	,		813
Apnea Index AI (Desat-Cor.) [Per hour] 62.3 (60.1) Index Per hour (Index Des-Correl.) 116,1 (108.9) Hypopnea Index HI (Desat-Cor.) [Per hour] 3,4 (3,4) Index Per hour (Index Des-Correl.) 116,1 (108.9) No. of Apnea Index II (Desat-Cor.) [Per hour] 3,4 (3,4) Phase shift distribution (Thorax/Abdomen) Of them Central: [n] 41 Mean duration of apneas [Sec] 24 No. of Hypopnea Im (RDT) [Hrs] 3:30.51 Apneas (Hing (Ex02) [Min Per hour] 30:07 Apneas (Hing (Ex02) [Min Per hour] 30:07 Longest Apnea [Ming (Ex02) [Min Per hour] 146	.	RDI (DesatCor.) [Per hour]		65,7 (63,6)	Time Share [%]		6	55,0
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No. of Apnea [n] 436 Of them Central: [n] 1 Mean duration of apneas [Sec] 28 No. of Hypopnea [n] 24 Total Apnea / Hypopnea lime (RDT) [Hrs] 3:30.51 Apnea / Hypopnea lime per hour [Min Per hour] 30:07 Ungest Apnea (Min) (t-0426:59) 1:48		Hypopnea Index HI (DesatCor.) [Per hour]	3,4 (3,4)				
Of them Central: [n] 1 Mean duration of apneas [Sec] 28 No. of Hypopnea [n] 24 Total Apnea / Hypopnea time (RDT) [Hrs] 3:30.51 Apnea / Hypopnea time per hour [Min Per hour] 30:07 Longest Apnea [Min] (t=0426.59) 1:48		No. of Apnea [n]		436	Pha	se shift distribution (T	norax/Abdomen)	
Mean duration of apneas [Sec] 28 27 27 28 No. of Hypopnea [m] 1 24 8 1 Total Apnea / Hypopnea time (RDT) [Hrs] 3:30:51 7 1 Apnea / Hypopnea time per hour [Min Per hour] 30:071 6 1 Longest Apnea [Min] (T=04:26:59) 1:46 4 1	-	Of them Central: [n]		1	04 Evolution time			
No. of Hypopnea (n) 24 Total Apnea / Hypopnea time (RDT) [Hrs] 3:30:51 Apnea / Hypopnea time per hour [Min Per hour] 30:07 4 Longest Apnea [Min] (t=04:26:59) 1:48 1:48	-	Mean duration of apneas [Sec]		28	9			
Aprear Phypopheta time (CO1) [115] 3.30.51 Aprear Phypopheta time (CO1) [115] 3.00.71 Longest Aprear [Min] (E-042.65.9) 1.48 Longest Aprear [Min] (E-042.65.9) 1.48		No. of Hypopnea [n]	E) [Lize]	24	8-	$\Lambda \Lambda$		
Longest Apnea (Jin) (=042659) 1:48	-	Append / Hypoppend time per hour II	in Perhourl	3.30.51	6	\sim \sim		
	-	Longest Annea [Min] (#04:26:59)	nin Pernourj	1:48	5		\mathbf{X}	
a ondesi cividophea (560) (1=05()4(40) 48 51 1		Longest Hypophea [Sec] (t=03:04:	40)	48				



A user-defined text can be added to the menu with use of the **Comment field**. Text blocks can be stored in the comment window.

		Cor	mment				
			M5V Comment		_		×
						🖗 Text st	orage
Findings Patient has Findings: Sev Valuation basis (r 5-15: Siight sile 15-30: Moderate > 30: Severe site	a sleep apnea synd ere sleep apnea syndrom <u>AHI):</u> p apnea syndrome sleep apnea syndrome eep apnea syndrome	drome.] e	Þatient has a sleep	apnea syndrome.			
AHI	10	20	ОК		Canc	el	

A generated report can be sent by e-mail. From the menu select **File – Send by E-Mail** and then choose the document file format.

		1	MSV Send E-Mail with		-		×
			Choose Fileformats	4,07MB			
File	View						
1.1	Open template		PDF				
••••	open template	_	ODOCX				
ABC	Save as		ORTF and PDF				
		_	O DOCX and PDF				
¥,	Send by E-Mail	2	ОК		Car	ncel	
		0					

Select **File – Print Dialog** to print the report or to save it as a PDF.





In the Print Dialog that opens choose **Print** or **PDF** from the footer.

ilements to print: ☑ Report ④ All Pages	Page Orientation Portrait O Portrait O Landscape	
Pages Selection	Printout markings On Off	
Page Orientation Portrait	2-Row curve Print Profil: Time resolution per s	ide:
Printout markings On Off	<current> V 8 Hrs</current>	/
2-Row curve	<pre>Print resolution (dpi):</pre>	

A customized protocol heading can be entered in the **header** of the **Report template**. It also is possible to add a **logo (JPG)** to the header.

The protocol heading can be shown in the heading. This can be entered in the menu under "Report/Protocol heading".							
PG_Schulung_obstr.	Height	cm	Begin				

To edit the protocol heading, select **Report – Protocol heading** from the software menu.



7. Other Functions

To make a **screenshot** of the current screen, select the fifth symbol from the left in the menu. The screenshot can be printed right away or saved as a PDF file.



Changes can be made to **patient data** in the menu under **Measurement – Patient data**. This data can also be changed after the recording has terminated.

Measurement	Evaluate	Report	View	Video	0				
Measure	Measurement Validated								
Patient data 😡									
Measurement beginning									
Patient data					x				
Surname First name Date of birth Height (cm) Weight (kg) Sex Pat. Number NHS No. Comment Patient type	Test test 07.07.1990 m M Adult	· ·							
ОК С	ancel I	Help	Insurar	ice card					

An automatic **Reanalysis** of the entire measurement or individual parameters can be selected from the menu **Evaluate – Reanalysis**.



33



To jump to a certain point in the measurement, use the function **Go to**, which can be called up from the menu under **Evaluate – Go to**. It also can be called up with the key combination **Ctrl + G**.

Evalu	ate Report View Video Optio	ns Help	Goto	×
	Reanalysis	•	Epoch	Time
<u>=</u> *	Manual Sleeping Stage Validation	Strg+M	1	23 •:00 •:03 •
	Confirm events	•	Time	Cancel
	Goto			

Changes can be made to the event colors and shortcut keys under **View – Configuration of markings** in the menu.

View	Video	Options	Help		
	View				•
	Configu	ration of n	narkings	6	



Under **View – Marking size large** you can select a large or small display of the event.

	View	Video Options H	elp		_
		View		•	
		Configuration of mark	cings		-
		Marking size large		\triangleright	
94 94 91 91	90	89 90 86 83	96 85	95 92	92 90 88 9
94 91 91	90 8	39 90 139 83	96 85	95 ₉₂	92 90 88

Changes to the **analysis parameters** can be made under **Options – Evaluate criteria**.

Optic	ons Help	
	Evaluate criteria	
	Edit channel sets	
	General Settings	
	Device Settings	
	Service +	
	Configuration of Report Export	
	Insurance card	
\sim	Configuration Biosignal Calibration	
	Language •	

In the window that opens up, items are divided up by topic on the left-hand side. Below the corresponding section, **thresholds** and **individual functions** can affect the **automatic analysis**. Changes made first go into effect at the next automatic analysis or reanalysis.

Evaluate Criteria				
Patient type: Adult 🗸				
Setting parameters	Threshold value of SpO2			
O Evaluation period	Desaturation decrease[%]	3		
O Flow	Upper Threshold [%]	100 🚔		
● SpO2	Lower Artifakt threshold [%]	50 🚔		
	Minimum [sec]	10 🚔		



Evaluate criteria can be set for three different patient types.

Adult, Child, Infant.

Patient type:	Adult y
	Adult
Catting	Child
Setting parame	Infant

If changes were made to the evaluate criteria and these are to be applied permanently, it is necessary to **apply** the **changes** with **Save**. Any changes made will only take effect during the next automatic analysis or Reanalysis.



Individual analysis settings can be **exported** as an analysis profile and **imported** again at a given point in time. Analysis profiles are saved in Profile folder as .acp files.

Export	Import
-	

The most important point under **Options – General Settings** is the setting for the **Working Directory**. All measurements are stored and retrieved from there. The directory can be maintained on a local computer or on a network drive (Server/NAS).

It is possible to set up a **Dynamic working directory**, which will be modified per year/quarter/month. The software will add a new subdirectory automatically at the interval selected.

Options	Help	General Settings
Evaluate criteria Edit channel sets		Program settings Save export paths Reconnect network drives
Ge	neral Settings 🔓	Open PDF after PDF-Export Printout: Confirm number of pages
	Change working directory	Standard printer: <standard printer=""></standard>
-	<none></none>	Change working directory
Y	<none> /ear /ear / Quarter</none>	<none></none>
Y Y	/ear / Month 🛛 🗟	

Settings can be made under **Options – Device Settings** for the devices used and the time and duration for the time-controlled start of a measurement.

isposed Interfaces		Recording start:			
MS plus/premium/MS PRO		O Manual switch-on			
		Timer-controlled switch-on			
✓ Sonata/Scala/Samoa (with US	В)	Begin (hh:mm:ss) Duration (hh:mm)			
✓ Sonata/Scala/Samoa (with So	nata Base)				
Sonata/Scala (with WiFi)	,	Minimum duration for measureme 5	(in)		
		within duration for measureme 5	ing		
Configuration Sonata Base	Configuration WiFi	Impedance measurement Sonata			
		continuous			
ser. ES / MS (com1)	Card reader	Odiscontinuous			
	Enable initializing	Immediately Printing			
		Begin printing Instantly after reading me	surement / Online mea		
Com port:	\checkmark	Report Repor	t (form		
Send-Delay: 10		Entire curve Short	form Standard		



Information about **programmed measurements** and **device-internal firmware status** and **serial numbers,** etc., can be called up via Options – Service - Device information.

Option	is Help						
	Evaluate cr	iteria				PG_Standard	
	Edit chann	el sets		All conternal builds			dininti
	General Set	ttings		utilization to	dinat		
	Device Sett	ings					
	Service		•	Device	informatio	in [b

If you need help from **Remote Support** with questions of any kind, gain access to TeamViewer under **Help – Start Remote Support**. The computer in use needs an Internet connection for Remote Support.

Help		
	Start Remote Support	\$

Device-specific instructions are stored under **Help – Short manual** and can be called up as PDF files.

Help				
	Start Remote Support	🕋 🗈 🔂 🔤 PG_Stand	ard	V
	Help	Linkikkan and ankadokan ka karandiki		utmontol a contribute de la della de la contribute de la contribute de la contribute de la contribute de la con
	Short manual	General	•	
	Device manuals	MiniScreen plus / premium	•	
i	Info	MiniScreen PRO	×	
		Samoa		Short manual Patient
٨	AAAA	Scala	•	Initialization Samoa 💦
N A	A JAHABBA)	Sonata	•	List of accessories Samoa



8. Key Combinations

Ctrl + G	Go to
Ctrl + P	Print
Ctrl + M	Manual Sleep Stage Validation
Ctrl + I	List of Impedance
Ctrl + Y	Hide Time/Epoch bar
Ctrl + V	Value cursor
Ctrl + Alt + V	Working Directory
Ctrl + Alt + P	Print Screenshot
Ctrl + Space bar	Set a Comment
Ctrl + F11	List of events
Ctrl + Shift + A	Show used Evaluate criteria
Ctrl + Shift + Space bar	Set Evaluation period
F2 + Left mouse button	Individual screenshot to insert it in the report
Ctrl + Shift + pressed left mouse button	Moving channels outside of channel boundaries



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