PsPM: Default Parameters

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by the PsPM team[1]:

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Contents

1 Introduction

Option fields are the fields of the options that are used by many functions in PsPM. Some of them have strict specification requirements and should be set carefully if non-standard values are used. Please check this chapter carefully about how to set the fields.

2 Index

2.1 Field name

- A word written in bold means the name of a variable.
  - Example: **channel**

2.2 Data type

There are five basic kinds of data types used for the values of the fields in PsPM, which are namely *cell*, *character* (abbreviated as *char*), *double*, *logical*, and *struct*. Among *double*, there are some values required to be *integers* for their actual meanings. There are also some values required to be more than 1×1 size, and there are therefore denoted as *double (vector)* or *double (matrix)*. If unspecified, *double (vector)* denotes a matrix of size $1 \times n$. If such vectors / matrixes are additionally required to be *integers*, they will be specified as *integer (vector)* or *integer (matrix)*.

2.3 Unit

Content in this column demonstrates the unit of default and acceptable values of this field. This column will not be available for the tables when there are no variables with physical meaning and units.

2.4 Default value

Default values are used if users have not customised the fields.

- A word written in typewritter format means a string that is used in the code, typically the value of a variable.
  - Example: `add`
- A number written in typewritter denotes a number used in the code, typically the value of a variable.
  - Example: `1`

2.5 Acceptable values

Apart from the notations described above for the default values, two additional terms, Any and Subset, are also used:

Any *Any* means any value that meets the requirement of data type can be used here.

Subset *Subset* means any value that is a subset of the default value can be used here.

3 References for Values

3.1 Abbreviations

ecg	Electrocardiogram
emg	Electromyography
dcm	Dynamic Causal Modelling
teo	Teager Energy Operator

3.2 Action descriptors

channel_action

- none
- add
- replace

channel_output

- all
- corrected

eyes

- combined
- left
- right

nan_output

- none
- screen
- file_output

statstype

- param
- cond
- recon Reconstruction

timeunit

- seconds
- samples
- markers

combined The combined left and right eyes.

replace The action of replacing the current content by the results for the channel of interest.

overwrite

- `1` The results will overwrite the current data.
- `0` The results will be dropped and not overwrite the current data.

3.3 Others

NS The parameter does not have a default value.

4 Function-specific Default Values

4.1 Blink Saccade Filter

Table 1 Default values for `pspm_blink_saccade_filt`

Field name	Data type	Default value	Acceptable values
`channel`	cell / char / integer	`0`	Any
`channel_action`	char	`add`	`replace`

4.2 Compute Visual Angle

Table 2 Default values for `pspm_compute_visual_angle`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.3 Con1

Table 3 Default values for `pspm_con1`

Field name	Data type	Default value	Acceptable values
`zscored`	logical	`0`	`1`

4.4 Con2

Table 4 Default values for `pspm_con2`

Field name	Data type	Default value	Acceptable values
`overwrite`	double	`0`	`1, 2`

4.5 Convert Area To Diameter

Table 5 Default values for `pspm_convert_area2diameter`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.6 Convert Au To Unit

Table 6 Default values for `pspm_convert_au2unit`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.7 Convert ECG To Heartbeat

Table 7 Default values for `pspm_convert_ecg2hb`

Field name	Data type	Unit	Default value	Acceptable values
`channel_action`	char	/	`replace`	`add`
`debugmode`	logical	/	`0`	`1`
`maxHR`	double	bpm	`200`	`> 20`
`minHR`	double	bpm	`20`	`< 200`
`outfact`	double	/	`2`	Any
`semi`	logical	/	`0`	`1`
`twthresh`	double	second	`0.36`	Any

4.8 Convert ECG To Heartbeat Amri

Table 8 Default values for `pspm_convert_ecg2hb_amri`

Field name	Data type	Unit	Default value	Acceptable values
`channel`	cell / char / integer	/	`ecg`	Any
`channel_action`	char	/	`add`	`replace`
`ecg_bandpass`	double (vector)	bpm	`[0.5, 40]`	`[m, n]`: `m>0`, `n>0`, `n>m`
`hrrange`	double (vector)	bpm	`[20, 200]`	`[m, n]`: `m>0`, `n>0`, `n>m`
`min_cross_corr`	double	/	`0.5`	Any
`min_relative_amplitude`	double	/	`0.4`	Any
`signal_to_use`	char	/	`auto`	`ecg, teo`
`teo_bandpass`	double (vector)	Hz	`[8, 40]`	`> 0`
`teo_order`	integer	/	`1`	Any

4.9 Convert Gaze Distance

Table 9 Default values for `pspm_convert_gaze_distance`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.10 Convert Heartbeat To HP

Table 10 Default values for `pspm_convert_hb2hp`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`replace`	`add`
`limit.lower`	double	`0.2`	`> 0`
`limit.upper`	double	`2`	`> 0`

4.11 Convert Pixel To Unit

Table 11 Default values for `pspm_convert_pixel2unit`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.12 Convert PPG To Heartbeat

Table 12 Default values for `pspm_convert_ppg2hb`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`replace`	`add`
`diagnostics`	logical	`0`	`1`

4.13 Convert Visual Angle To SPS

Table 13 Default values for `pspm_convert_visangle2sps`

Field name	Data type	Default value	Acceptable values
`channel`	cell / char / integer	`1`	Any
`channel_action`	char	`add`	`replace`
`eye`	char	`settings.lateral.char.b`	`settings.lateral.char.l`, `settings.lateral.char.r`

4.14 Data Editor

Table 14 Default values for `pspm_data_editor`

Field name	Data type	Default value	Acceptable values
`epoch_file`	char	NS	file must be a struct with an `epoch` field
`output_file`	char	NS	a file the changed data is saved to
`overwrite`	double	`0`	`1, 2`

4.15 DCM

Table 15 Default values for `pspm_dcm`

Field name	Data type	Default value	Acceptable values
`aSCR_sigma_offset`	double	`0.1`	`> 0`
`method`	char	`dcm`	`?`
`sclpost`	double	`5`	`> 0`
`sclpre`	double	`2`	`> 0`
`sffreq`	double	`0.5`	`> 0`
`sfpost`	double	`5`	`> 0`
`sfpre`	double	`2`	`> 0`
`crfupdate`	logical	`0`	`1`
`depth`	integer	`2`	Any
`dispsmallwin`	logical	`0`	`1`
`dispwin`	logical	`1`	`0`
`eventnames`	cell	`{}`	Any
`getrf`	logical	`0`	`1`
`indrf`	logical	`0`	`1`
`nosave`	logical	`0`	`1`
`overwrite`	double	`1`	`0, 2`
`rf`	logical	`0`	`1`
`trlnames`	cell / char	`{}`	Any

4.16 DCM Inversed

Table 16 Default values for `pspm_dcm_inv`

Field name	Data type	Default value	Acceptable values
`aSCR`	double	`0`	`?`
`aSCR_sigma_offset`	double	`0.1`	`> 0`
`eSCR`	logical	`0`	`1`
`sclpost`	double	`5`	`> 0`
`sclpre`	double	`2`	`> 0`
`sffreq`	double	`0.5`	`> 0`
`sfpost`	double	`5`	`> 0`
`sfpre`	double	`2`	`> 0`
`crfupdate`	logical	`0`	`1`
`depth`	integer	`2`	Any
`dispsmallwin`	logical	`0`	`1`
`dispwin`	logical	`1`	`0`
`eventnames`	cell	`{}`	Any
`getrf`	logical	`0`	`1`
`indrf`	logical	`0`	`1`
`nosave`	logical	`0`	`1`
`overwrite`	double	`1`	`0, 2`
`rf`	logical	`0`	`1`
`trlnames`	cell / char	`{}`	Any

4.17 Down

Table 17 Default values for `pspm_down`

Field name	Data type	Default value	Acceptable values
`overwrite`	double	`0`	`1, 2`

4.18 ECG Editor

Table 18 Default values for `pspm_ecg_editor`

Field name	Data type	Default value	Acceptable values
artefact	char	[]	Any
channel	cell / char / integer	1	Any
factor	double	1	> 0
semi	logical	0	1

4.19 EMG PP

Table 19 Default values for pspm_emg_pp

Field name	Data type	Default value	Acceptable values
channel	cell / char / integer	emg	Any
channel_action	char	replace	add
mains_freq	double	50	> 0

4.20 Exp

Table 20 Default values for pspm_exp

Field name	Data type	Default value	Acceptable values
delim	char	\t	Any
exclude_missing	logical	0	1
statstype	char	param	cond, recon
target	char	screen	Any

4.21 Extract Segments

Table 21 Default values for pspm_extract_segments

Field name	Data type	Default value	Acceptable values
marker_chan	cell / char / integer	marker	Any
length	double	10	≥ 0
nan_output	char	none	screen, file output
norm	logical	0	1
outputfile	char	‘’	Any
overwrite	double	0	1, 2
plot	logical	0	1
timeunit	char	seconds	samples, markers

4.22 Find Sounds

Table 22 Default values for pspm_find_sounds

Field name	Data type	Default value	Acceptable values
channel_action	char	none	add, replace
channel_output	char	all	corrected
diagnostics	logical	1	0
expectedSoundCount	integer	0	≥ 0
maxdelay	double	3	≥ 0
mindelay	double	0	≥ 0
plot	logical	0	1
resample	integer	1	≥ 1
roi	double (vector)	[]	[a, b]; a,b∈R
sndchannel	integer	0	≥ 0
threshold	double	0.1	≥ 0
trigchannel	integer	0	≥ 0

4.23 Find Valid Fixations

Table 23 Default values for pspm_find_valid_fixations

Field name	Data type	Default value	Acceptable values
channel	cell / char / integer	1	Any
eyes	char	combined	left, right
fixation_point	double (vector)	[0.5, 0.5]	?
missing	logical	0	1
newfile	char	‘’	Any
overwrite	double	0	1, 2
plot_gaze_coords	logical	0	1
resolution	double (vector)	[1, 1]	[a, b]; a,b∈R

4.24 Gaze Preprocessing

Table 24 Default values for pspm_gaze_pp

Field name	Data type	Default value	Acceptable values
channel	char	gaze_x_l	gaze_x_r, gaze_y_l, gaze_y_r
channel_action	char	add	replace
channel_combine	char	none	gaze_x_l, gaze_x_r, gaze_y_l, gaze_y_r
valid_sample	logical	0	1

4.25 Get Marker Information

Table 25 Default values for pspm_get_markerinfo

Field name	Data type	Default value	Acceptable values
filename	char	‘’	Any
marker_chan	double	-1	Any
overwrite	double	0	1, 2

4.26 Get RF

Table 26 Default values for pspm_get_rf

Field name	Data type	Default value	Acceptable values
aSCR_sigma_offset	double	0.1	> 0
eventnames	cell	{}	Any
nosave	logical	0	1
sclpost	double	5	> 0
sclpre	double	2	> 0
sffreq	double	0.5	> 0
sfpost	double	5	> 0
sfpre	double	2	> 0
crfupdate	logical	0	1
depth	double	2	?
dispsmallwin	logical	0	1
dispwin	logical	1	0
getrf	logical	0	1
indrf	logical	0	1
overwrite	double	1	0, 2
rf	logical	0	1
trlnames	char / cell	{}	Any

4.27 GLM

Table 27 Default values for pspm_glm

Field name	Data type	Default value	Acceptable values
marker_chan_num	cell / char / integer	marker	Any
bf	logical	0	1
exclude_missing	struct	NS	struct('segment_length', m, 'cutoff', n), m, n > 0
centering	logical	1	0
norm	logical	0	1
overwrite	double	0	1, 2

4.28 Import

Table 28 Default values for pspm_import

Field name	Data type	Default value	Acceptable values
overwrite	double	0	1, 2

4.29 Interpolate

Table 29 Default values for pspm_interpolate

Field name	Data type	Default value	Acceptable values
channel	cell / char / integer	1	Any
channel_action	char	add	replace
extrapolate	logical	0	1
method	char	linear	pchip, nearest, spline, previous, next
newfile	logical	0	1
overwrite	double	0	1, 2

4.30 Load1

Table 30 Default values for pspm_load1

Field name	Data type	Default value	Acceptable values
overwrite	integer	0	1, 2
zscored	logical	0	1

4.31 Merge

Table 31 Default values for pspm_merge

Field name	Data type	Default value	Acceptable values
marker_chan_num	integer (vector)	[0, 0]	Any
overwrite	integer	0	1, 2

4.32 PFM

Table 32 Default values for pspm_pfm

Field name	Data type	Default value	Acceptable values
overwrite	integer	0	1, 2

4.33 PP

Table 33 Default values for pspm_pp

Field name	Data type	Default value	Acceptable values
overwrite	integer	0	1, 2

4.34 Process illuminance

Table 34 Default values for pspm_process_illuminance

Field name	Data type	Default value	Acceptable values
bf	struct	struct()	Any
fn	char	*empty*	Any
overwrite	integer	0	1, 2
transfer	double (vector)	[49.79,-1.05,-0.50]	[a, b, c]: a, b, c>0
bf.constriction	struct	struct()	Any
bf.dilation	struct	struct()	Any
bf.duration	double	20	≥ 0
bf.offset	double	0.2	≥ 0

4.35 Pupil Correct Eyelink

Table 35 Default values for pspm_pupil_correct_eyelink

Field name	Data type	Default value	Acceptable values
C_x	double	0	Any
C_y	double	0	Any
C_z	double	0	Any
channel	char	pupil	Any
channel_action	char	add	replace
mode	char	auto	manual
S_x	double	0	Any
S_y	double	0	Any
S_z	double	0	Any
screen_size_mm	double (vector)	[43.5, 29.9]	[a, b]: a, b>0
screen_size_px	double (vector)	[1920, 1080]	[a, b]: a, b>0

4.36 Pupil Preprocessing

Table 36 Default values for `pspm_pupil_pp`

Field name	Data type	Default value	Acceptable values
`channel`	char	`pupil`	`pupil_l, pupil_r`
`channel_combine`	char	`none`	`pupil_l, pupil_r`
`plot_data`	logical	`0`	`1`
`segments`	cell	`{}`	Any

4.37 Remove Epochs

Table 37 Default values for `pspm_remove_epochs`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`

4.38 Resp Preprocessing

Table 38 Default values for `pspm_resp_pp`

Field name	Data type	Default value	Acceptable values
`channel_action`	char	`add`	`replace`
`datatype`	cell	`{rp, ra, rfr, rs, all}`	Subset
`diagnostics`	logical	`0`	`1`
`plot`	logical	`0`	`1`
`systemtype`	char	`bellows`	`cushion`

4.39 SCR Preprocessing

Table 39 Default values for `pspm_scr_pp`

Field name	Data type	Default value	Acceptable values
change_data	logical	1	0
channel_action	char	add	replace, withdraw
clipping_n_window	integer	10000	Any
clipping_step_size	integer	2	Any
clipping_threshold	double	0.1	Any
data_island_threshold	double	0	≥ 0
deflection_threshold	double	0.1	Any
expand_epochs	double	0.5	≥ 0
max	double	60	> 0
min	double	0.05	> 0
missing_epochs_filename	char	missing_epochs_filename	Any
slope	double	10	Any

4.40 Segment Mean

Table 40 Default values for pspm_segment_mean

Field name	Data type	Default value	Acceptable values
adjust_method	char	none	downsample, interpolate
newfile	char	*empty*	Any
overwrite	integer	0	1, 2
plot	logical	0	1

4.41 SF

Table 41 Default values for pspm_sf

Field name	Data type	Default value	Acceptable values
dispsmallwin	logical	0	1
dispwin	logical	1	0
fresp	double	0.5	$\geq$ 0
marker_chan_num	char / integer	marker	Any
overwrite	integer	1	0, 2
theta	double (vector)	[0.92, 3.92, 2.16, 1.53, 1.64]	Any
threshold	double	0.1	> 0

4.42 SF DCM

Table 42 Default values for pspm_sf_dcm

Field name	Data type	Default value	Acceptable values
dispwin	logical	1	0
dispsmallwin	logical	0	1
fresp	double	0.5	> 0
theta	double (vector)	[0.92, 3.92, 2.16, 1.53, 1.64]	Any
threshold	double	0.1	> 0

4.43 SF MP

Table 43 Default values for pspm_sf_mp

Field name	Data type	Default value	Acceptable values
diagnostics	logical	0	1
dispwin	logical	0	1
fresp	double	0.5	> 0
theta	double (vector)	[0.92, 3.92, 2.16, 1.53, 1.64]	Any
threshold	double	0.1	> 0

4.44 Split Sessions

Table 44 Default values for pspm_split_sessions

Field name	Data type	Default value	Acceptable values
max_sn	double	settings.split.max_sn	> 0
min_break_ratio	double	settings.split.min_break_ratio	> 0
missing	char	*empty*	Any
overwrite	integer	0	1, 2
prefix	double	0	≤ 0
randomITI	logical	0	1
splitpoints	double (vector)	[]	Any
suffix	double	0	≥ 0
verbose	logical	1	0

4.45 Trim

Table 45 Default values for pspm_trim

Field name	Data type	Default value	Acceptable values
drop_offset_markers	integer	0	Any
marker_chan_num	integer	0	Any
overwrite	integer	0	1, 2

4.46 Write Channel

Table 46 Default values for pspm_write_channel

Field name	Data type	Default value	Acceptable values
channel	integer / char / cell	0	Any
delete	char	last	first, all
msg	char / struct	*empty*	Any
prefix	char	Generic undocumented operation ::	Any