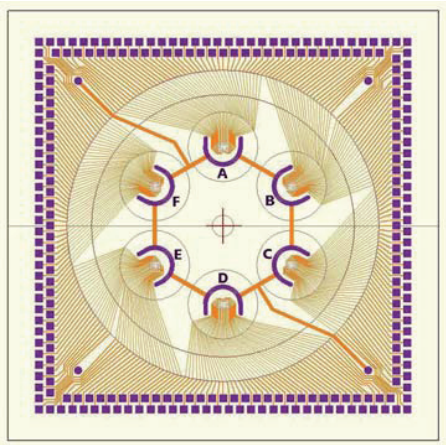
256-6wellMEA for MEA2100-256-Systems and for USB-MEA-256-Systems

Layout



Technical Specifications

Temperature compatibility	0 - 125 °C
Dimensions (W x D x H)	49 mm x 49 mm x 1 mm
Base material	Glass
Track material	ITO (Indium tin oxide)
Contact pads	ITO (Indium tin oxide)
Electrode diameter	30 µm
Interelectrode distance (center to center)	200 µm
Electrode height	Planar
Electrode material	TiN (Titanium nitride)
Isolation material	Silicon nitride 500 nm (PEVCD)
Electrode impedance	< 100 kΩ
Electrode layout grid	6 x (7 x 6) electrodes
Number of recording electrodes	252 (42 electrodes in each well)
Number of reference electrodes	6, one internal reference electrode (iR) in each well
Contact pads for reference electrodes (connected to ground)	4, the reference electrodes are connected to 2 pads only
Software	
Multi Channel Experimenter	MEA Layout: 256-6wellMEA
MC_Rack	Source Layout: Configuration
Channel map	256-6wellMEA.cmp

Advantages

- 256-6wellMEAs are developed, for example, for safety-pharmacological screenings of drug induced QT-prolongation.
- The 256-6wellMEA allows running six experiments with identical surrounding conditions at once.
- Two types of macrolon rings are available: Rings with six triangular chambers and rings with six round chambers.

May 2019

Multi Channel Systems
MCS GmbH
Aspenhaustrasse 21
72770 Reutlingen
Germany

Phone +49-7121-909 25- 0
Fax +49-7121-909 25-11

sales@multichannelsystems.com
www.multichannelsystems.com

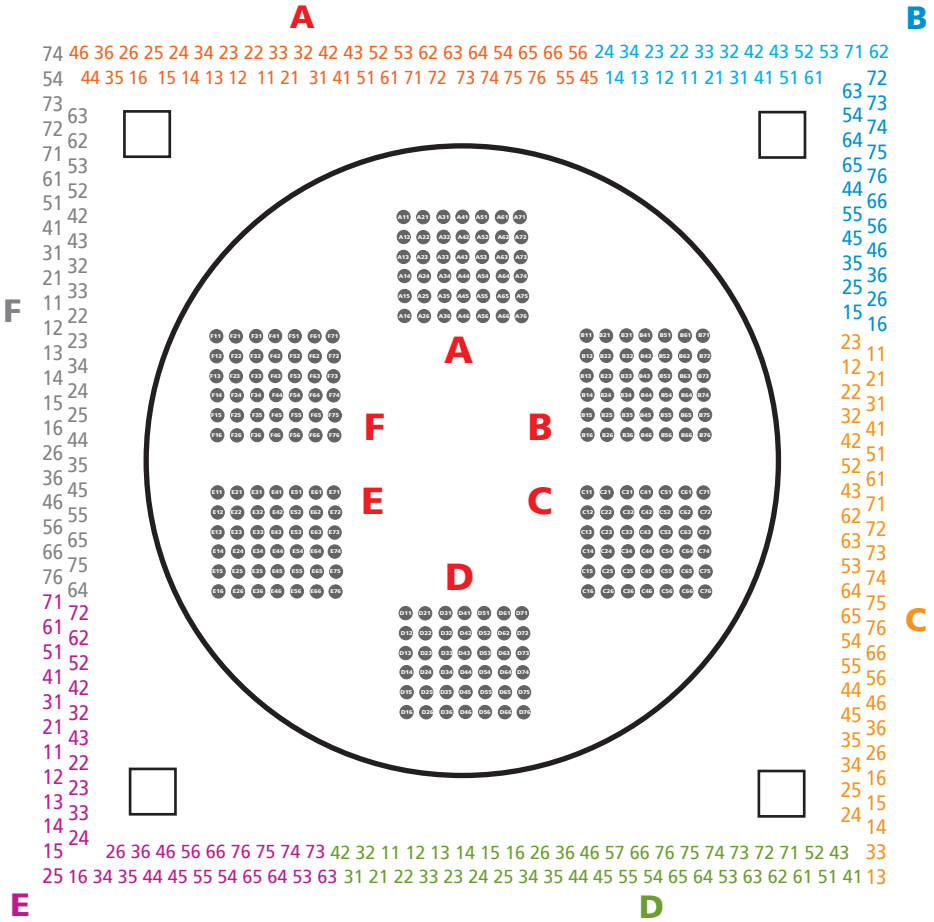
256-6wellMEA for MEA2100-256-Systems and for USB-MEA-256-Systems

Layout

Example Well A: The numbering of MEA electrodes in the 7 x 6 grid per each well follows the standard numbering scheme for square grids:

The first digit is the column number and the second digit is the row number. For example, electrode 23 is positioned in the second column of the third row.

There is one big internal reference electrode around each well. The six reference electrodes are connected to two of the four contact pads for grounding them.



May 2019

Multi Channel Systems
MCS GmbH
Aspenhaustrasse 21
72770 Reutlingen
Germany

Phone +49-7121-909 25- 0
Fax +49-7121-909 25-11

sales@multichannelsystems.com
www.multichannelsystems.com

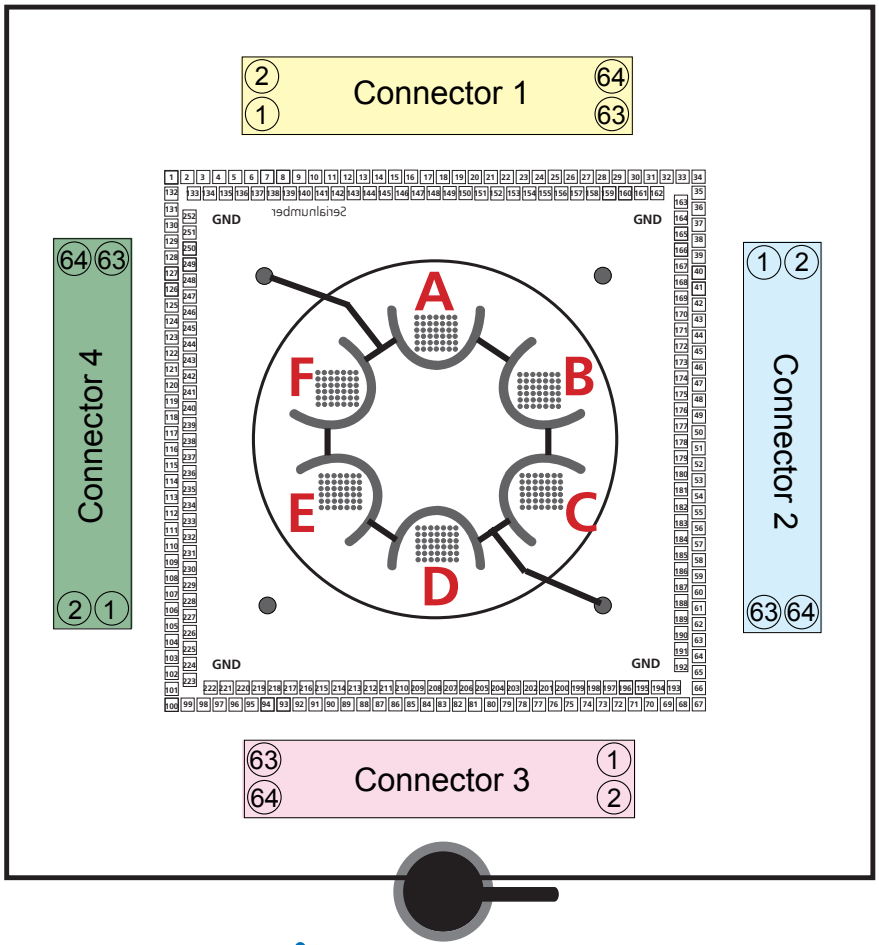
256-6wellMEA for MEA2100-256-Systems and for USB-MEA-256-Systems

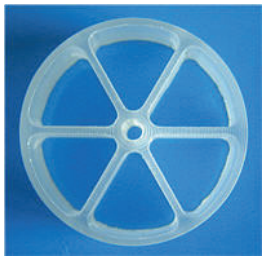
Stimulation with USB-MEA256 Headstage:
Please see the scheme below and use the table to correlate the stimulation electrodes on the 256MEA.
Stimulation with MEA2100-256-Headstage:
Select any stimulation electrode via software.

The letter digit code is the electrode identifier and refers to the position of the electrode in the 7 x 6 layout grid per well. The layout of the letter digit code for the four connectors of the USB-MEA256 amplifier is shown. To correlate the pin layout of the connectors, please see the table on the next page.

The MEA is not symmetrical and has to be inserted into the amplifier with well A on top as shown in the picture.

Scheme for Stimulation: USB-MEA256 Headstage

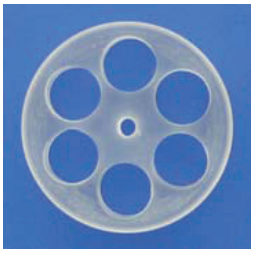




6 Well MEA Perfusion Chamber

(tcr) Triangle chamber ring with 6 wells
OD 30 mm, ID 27 mm, height 10 mm of each well.
Volumetric capacity of each well: minimum 700 µl.

(rcr) Round chamber ring with 6 wells:
OD 30 mm, ID of the wells 8 mm, height 10 mm of each well.
Volumetric capacity of each well: minimum 500 µl.



May 2019

Multi Channel Systems
MCS GmbH
Aspenhaustrasse 21
72770 Reutlingen
Germany

Phone +49-7121-909 25- 0
Fax +49-7121-909 25-11

sales@multichannelsystems.com
www.multichannelsystems.com

256-6wellMEA for MEA2100-256-Systems and for USB-MEA-256-Systems

Layout

Stim. Socket = Stimulation socket number in Stimulation Connectors 1 to 4.
Spring Contact = Spring Contacts in the lid of the amplifier.
Electrode ID = Electrode ID of the MEA electrode in the 6 x (7 x 6) layout grid.

Table

Stimulation Connector 1		
Stim Socket	Electrode ID	Spring Con.
1	A46	2
2	F74	1
3	A36	3
4	A44	133
5	A26	4
6	A35	134
7	A25	5
8	A16	135
9	A24	6
10	A15	136
11	A34	7
12	A14	137
13	A23	8
14	A13	138
15	A22	9
16	A12	139
17	A33	10
18	A11	140
19	A32	11
20	A21	141
21	A42	12
22	A31	142
23	A43	13
24	A41	143
25	A52	14
26	A51	144
27	A53	15
28	A61	145
29	A62	16
30	A71	146
31	A63	17
32	A72	147
33	A64	18
34	A73	148
35	A54	19
36	A74	149
37	A65	20
38	A75	150
39	A66	21
40	A76	151
41	A56	22
42	A55	152
43	B24	23
44	A45	153
45	B34	24
46	B14	154
47	B23	25
48	B13	155
49	B22	26
50	B12	156
51	B33	27
52	B11	157
53	B32	28
54	B21	158
55	B42	29
56	B31	159
57	B43	30
58	B41	160
59	B52	31
60	B51	161
61	B53	32
62	B61	162
63	B71	33
GND		

Stimulation Connector 2		
Stim Socket	Electrode ID	Spring Con.
1	B72	35
2	B62	34
3	B73	36
4	B63	163
5	B74	37
6	B54	164
7	B75	38
8	B64	165
9	B76	39
10	B65	166
11	B66	40
12	B44	167
13	B56	41
14	B55	168
15	B46	42
16	B45	169
17	B36	43
18	B35	170
19	B26	44
20	B25	171
21	B16	45
22	B15	172
23	C11	46
24	C23	173
25	C21	47
26	C12	174
27	C31	48
28	C22	175
29	C41	49
30	C32	176
31	C51	50
32	C42	177
33	C61	51
34	C52	178
35	C71	52
36	C43	179
37	C72	53
38	C62	180
39	C73	54
40	C63	181
41	C74	55
42	C53	182
43	C75	56
44	C64	183
45	C76	57
46	C65	184
47	C66	58
48	C54	185
49	C56	59
50	C55	186
51	C46	60
52	C44	187
53	C36	61
54	C45	188
55	C26	62
56	C35	189
57	C16	63
58	C34	190
59	C15	64
60	C25	191
61	C14	65
62	C24	192
63	C33	66
GND		

Stimulation Connector 3		
Stim Socket	Electrode ID	Spring Con.
1	D41	68
2	C13	67
3	D51	69
4	D43	193
5	D61	70
6	D52	194
7	D62	71
8	D71	195
9	D63	72
10	D72	196
11	D53	73
12	D73	197
13	D64	74
14	D74	198
15	D65	75
16	D75	199
17	D54	76
18	D76	200
19	D55	77
20	D66	201
21	D45	78
22	D56	202
23	D44	79
24	D46	203
25	D35	80
26	D36	204
27	D34	81
28	D26	205
29	D25	82
30	D16	206
31	D24	83
32	D15	207
33	D23	84
34	D14	208
35	D33	85
36	D13	209
37	D22	86
38	D12	210
39	D21	87
40	D11	211
41	D31	88
42	D32	212
43	E63	89
44	D42	213
45	E53	90
46	E73	214
47	E64	91
48	E74	215
49	E65	92
50	E75	216
51	E54	93
52	E76	217
53	E55	94
54	E66	218
55	E45	95
56	E56	219
57	E44	96
58	E46	220
59	E35	97
60	E36	221
61	E34	98
62	E26	222
63	E16	99
GND		

Stimulation Connector 4		
Stim Sock	Electrode ID	Spring Con.
1	E15	101
2	E25	100
3	E14	102
4	E24	223
5	E13	103
6	E33	224
7	E12	104
8	E23	225
9	E11	105
10	E22	226
11	E21	106
12	E43	227
13	E31	107
14	E32	228
15	E41	108
16	E42	229
17	E51	109
18	E52	230
19	E61	110
20	E62	231
21	E71	111
22	E72	232
23	F76	112
24	F64	233
25	F66	113
26	F75	234
27	F56	114
28	F65	235
29	F46	115
30	F55	236
31	F36	116
32	F45	237
33	F26	117
34	F35	238
35	F16	118
36	F44	239
37	F15	119
38	F25	240
39	F14	120
40	F24	241
41	F13	121
42	F34	242
43	F12	122
44	F23	243
45	F11	123
46	F22	244
47	F21	124
48	F33	245
49	F31	125
50	F32	246
51	F41	126
52	F43	247
53	F51	127
54	F42	248
55	F61	128
56	F52	249
57	F71	129
58	F53	250
59	F72	130
60	F62	251
61	F73	131
62	F63	252
63	F54	132
GND		

Multi Channel Systems
MCS GmbH
Aspenhaustrasse 21
72770 Reutlingen
Germany

Phone +49-7121-909 25- 0
Fax +49-7121-909 25-11

sales@multichannelsystems.com
www.multichannelsystems.com