

Controller	Number Rules	Signal Generator	Membership Function	Defuzzification Method	Perturbation Actuator	Perturbation Charge	Performance
Mamdani	9	Square	gaussmf	centroid	No	No	252.1
Mamdani	9	Square	gaussmf	centroid	Yes	No	278.3
Mamdani	9	Square	gaussmf	centroid	No	Yes	299.3
Mamdani	9	Square	gaussmf	centroid	Yes	Yes	305
Mamdani	9	Square	gaussmf	medmax	No	No	449.8
Mamdani	9	Square	gaussmf	medmax	Yes	No	476.3
Mamdani	9	Square	gaussmf	medmax	No	Yes	499.9
Mamdani	9	Square	gaussmf	medmax	Yes	Yes	504.8
Mamdani	9	Square	trimf	centroid	No	No	188.1
Mamdani	9	Square	trimf	centroid	Yes	No	200.2
Mamdani	9	Square	trimf	centroid	No	Yes	217.2
Mamdani	9	Square	trimf	centroid	Yes	Yes	222.3
Mamdani	9	Square	trimf	medmax	No	No	619.4
Mamdani	9	Square	trimf	medmax	Yes	No	461.2
Mamdani	9	Square	trimf	medmax	No	Yes	472.5
Mamdani	9	Square	trimf	medmax	Yes	Yes	480.6
Mamdani	9	Sin	gaussmf	centroid	No	No	3.698
Mamdani	9	Sin	gaussmf	centroid	Yes	No	71.01
Mamdani	9	Sin	gaussmf	centroid	No	Yes	57.47
Mamdani	9	Sin	gaussmf	centroid	Yes	Yes	79.3
Mamdani	9	Sin	gaussmf	medmax	No	No	414.3
Mamdani	9	Sin	gaussmf	medmax	Yes	No	420.8
Mamdani	9	Sin	gaussmf	medmax	No	Yes	349.3
Mamdani	9	Sin	gaussmf	medmax	Yes	Yes	423
Mamdani	9	Sin	trimf	centroid	No	No	0.9305
Mamdani	9	Sin	trimf	centroid	Yes	No	40.26
Mamdani	9	Sin	trimf	centroid	No	Yes	29.62
Mamdani	9	Sin	trimf	centroid	Yes	Yes	48.64
Mamdani	9	Sin	trimf	medmax	No	No	413.1
Mamdani	9	Sin	trimf	medmax	Yes	No	414.5
Mamdani	9	Sin	trimf	medmax	No	Yes	347.9
Mamdani	9	Sin	trimf	medmax	Yes	Yes	423.1
Mamdani	25	Square	gaussmf	centroid	No	No	29
Mamdani	25	Square	gaussmf	centroid	Yes	No	29.79
Mamdani	25	Square	gaussmf	centroid	No	Yes	33.23
Mamdani	25	Square	gaussmf	centroid	Yes	Yes	35.9
Mamdani	25	Square	gaussmf	medmax	No	No	143.3
Mamdani	25	Square	gaussmf	medmax	Yes	No	149.6
Mamdani	25	Square	gaussmf	medmax	No	Yes	145.7
Mamdani	25	Square	gaussmf	medmax	Yes	Yes	147.8
Mamdani	25	Square	trimf	centroid	No	No	30.99
Mamdani	25	Square	trimf	centroid	Yes	No	32.07
Mamdani	25	Square	trimf	centroid	No	Yes	36.94
Mamdani	25	Square	trimf	centroid	Yes	Yes	38.29
Mamdani	25	Square	trimf	medmax	No	No	134.7
Mamdani	25	Square	trimf	medmax	Yes	No	140.1
Mamdani	25	Square	trimf	medmax	No	Yes	150.6
Mamdani	25	Square	trimf	medmax	Yes	Yes	147.6
Mamdani	25	Sin	gaussmf	centroid	No	No	0.001557
Mamdani	25	Sin	gaussmf	centroid	Yes	No	0.993
Mamdani	25	Sin	gaussmf	centroid	No	Yes	2.125
Mamdani	25	Sin	gaussmf	centroid	Yes	Yes	4.448
Mamdani	25	Sin	gaussmf	medmax	No	No	110.5

Mamdani	25	Sin	gaussmf	medmax	Yes	No	114.8
Mamdani	25	Sin	gaussmf	medmax	No	Yes	115.8
Mamdani	25	Sin	gaussmf	medmax	Yes	Yes	120.1
Mamdani	25	Sin	trimf	centroid	No	No	0.001043
Mamdani	25	Sin	trimf	centroid	Yes	No	0.6235
Mamdani	25	Sin	trimf	centroid	No	Yes	1.651
Mamdani	25	Sin	trimf	centroid	Yes	Yes	3.675
Mamdani	25	Sin	trimf	medmax	No	No	109.4
Mamdani	25	Sin	trimf	medmax	Yes	No	118.1
Mamdani	25	Sin	trimf	medmax	No	Yes	116.6
Mamdani	25	Sin	trimf	medmax	Yes	Yes	117.2
Sugeno	9	Square	gaussmf	med	No	No	24.88
Sugeno	9	Square	gaussmf	med	Yes	No	25.59
Sugeno	9	Square	gaussmf	med	No	Yes	28.89
Sugeno	9	Square	gaussmf	med	Yes	Yes	30.81
Sugeno	9	Square	gaussmf	sum	No	No	21.78
Sugeno	9	Square	gaussmf	sum	Yes	No	22.27
Sugeno	9	Square	gaussmf	sum	No	Yes	25.33
Sugeno	9	Square	gaussmf	sum	Yes	Yes	26.64
Sugeno	9	Square	trimf	med	No	No	24.71
Sugeno	9	Square	trimf	med	Yes	No	25.17
Sugeno	9	Square	trimf	med	No	Yes	29.43
Sugeno	9	Square	trimf	med	Yes	Yes	30.22
Sugeno	9	Square	trimf	sum	No	No	23.7
Sugeno	9	Square	trimf	sum	Yes	No	24.32
Sugeno	9	Square	trimf	sum	No	Yes	27.12
Sugeno	9	Square	trimf	sum	Yes	Yes	29.56
Sugeno	9	Sin	gaussmf	med	No	No	0.0006321
Sugeno	9	Sin	gaussmf	med	Yes	No	0.7773
Sugeno	9	Sin	gaussmf	med	No	Yes	1.896
Sugeno	9	Sin	gaussmf	med	Yes	Yes	3.597
Sugeno	9	Sin	gaussmf	sum	No	No	0.000277
Sugeno	9	Sin	gaussmf	sum	Yes	No	0.4134
Sugeno	9	Sin	gaussmf	sum	No	Yes	1.517
Sugeno	9	Sin	gaussmf	sum	Yes	Yes	2.708
Sugeno	9	Sin	trimf	med	No	No	0.002026
Sugeno	9	Sin	trimf	med	Yes	No	0.3688
Sugeno	9	Sin	trimf	med	No	Yes	1.568
Sugeno	9	Sin	trimf	med	Yes	Yes	3.101
Sugeno	9	Sin	trimf	sum	No	No	0.0002018
Sugeno	9	Sin	trimf	sum	Yes	No	0.2895
Sugeno	9	Sin	trimf	sum	No	Yes	1.494
Sugeno	9	Sin	trimf	sum	Yes	Yes	2.656
Sugeno	25	Square	gaussmf	med	No	No	21.77
Sugeno	25	Square	gaussmf	med	Yes	No	22.36
Sugeno	25	Square	gaussmf	med	No	Yes	24.94
Sugeno	25	Square	gaussmf	med	Yes	Yes	26.59
Sugeno	25	Square	gaussmf	sum	No	No	18.95
Sugeno	25	Square	gaussmf	sum	Yes	No	19.95
Sugeno	25	Square	gaussmf	sum	No	Yes	21.51
Sugeno	25	Square	gaussmf	sum	Yes	Yes	22.3
Sugeno	25	Square	trimf	med	No	No	24.57
Sugeno	25	Square	trimf	med	Yes	No	24.84
Sugeno	25	Square	trimf	med	No	Yes	27.88

Sugeno	25	Square	trimf	med	Yes	Yes	29.57
Sugeno	25	Square	trimf	sum	No	No	22.99
Sugeno	25	Square	trimf	sum	Yes	No	23.72
Sugeno	25	Square	trimf	sum	No	Yes	23.69
Sugeno	25	Square	trimf	sum	Yes	Yes	28.8
Sugeno	25	Sin	gaussmf	med	No	No	0.0003508
Sugeno	25	Sin	gaussmf	med	Yes	No	0.4425
Sugeno	25	Sin	gaussmf	med	No	Yes	1.618
Sugeno	25	Sin	gaussmf	med	Yes	Yes	3.154
Sugeno	25	Sin	gaussmf	sum	No	No	0.0001541
Sugeno	25	Sin	gaussmf	sum	Yes	No	0.2451
Sugeno	25	Sin	gaussmf	sum	No	Yes	1.302
Sugeno	25	Sin	gaussmf	sum	Yes	Yes	2.344
Sugeno	25	Sin	trimf	med	No	No	0.0001085
Sugeno	25	Sin	trimf	med	Yes	No	0.3371
Sugeno	25	Sin	trimf	med	No	Yes	1.539
Sugeno	25	Sin	trimf	med	Yes	Yes	2.898
Sugeno	25	Sin	trimf	sum	No	No	0.0001085
Sugeno	25	Sin	trimf	sum	Yes	No	0.2134
Sugeno	25	Sin	trimf	sum	No	Yes	1.459
Sugeno	25	Sin	trimf	sum	Yes	Yes	2.566