

# Annex - Frequency converter setting values Mitsubishi FR-A740 (Frequen1V23.FRA)

Lean-Lift

## 1. Setting values for Hänel Lean-Lift with economy-speed drives

		ES11	ES21	ES31	ES41	ES51
		FR-A 740 ES				
		- 00083	- 00126	- 00170	- 00170	- 00250
		2,2 KW	3,7 KW	5,5 KW	5,5 KW	7,5 KW
Parameter	Setting Range MP12D/N	ES_150	ES_250	ES_500	ES_700	ES_1000
		PMS4	PMS5	PMS6	PMS7	PMS8
1 Maximum frequency	5 to 120 Hz	120Hz	120Hz	120Hz	120Hz	120Hz
2 Minimum frequency		3Hz	3Hz	3Hz	3Hz	3Hz
7 Acceleration time		1,1sec.	1,1sec.	1,1sec.	1,1sec.	1,1sec.
8 Deceleration time		0,5sec.	0,5sec.	0,5sec.	0,5sec.	0,5sec.
9 Electronic thermal O/L relay	8,00 to 17,00 A	6A	8,2A	11,02A	11,02A	14,67A
11 DC injection brake operation time		0sec.	0sec.	0sec.	0sec.	0sec.
13 Starting frequency		0,5Hz	0,5Hz	0,5Hz	0,5Hz	0,5Hz
14 Load pattern selection		0	0	0	0	0
18 High speed maximum frequency	120 – 150 Hz	120Hz	120Hz	120Hz	120Hz	120Hz
19 Base frequency voltage		400V	400V	400V	400V	400V
20 Acceleration/deceleration reference frequency		200Hz	200Hz	200Hz	200Hz	200Hz
21 Acceleration/deceleration time increments		1	1	1	1	1
22 Stall prevention operation level (torque limit level )	115,0 to 140,0 %	125%	125%	125%	125%	125%
23 Stall prevention operation level compensation fact		9999	9999	9999	9999	9999
29 Acceleration/deceleration pattern selection		0	0	0	0	0
30 Regenerative function selection		1	1	1	1	1
42 Output frequency detection		0,5Hz	0,5Hz	0,5Hz	0,5Hz	0,5Hz
43 Output frequency detection for reverse rotation		9999	9999	9999	9999	9999
44 Second acceleration/deceleration time		1,2sec.	1,2sec.	1,2sec.	1,2sec.	1,2sec.
45 Second deceleration time		0,2sec.	0,2sec.	0,2sec.	0,2sec.	0,2sec.
46 Second torque boost	4,0 to 15,0 %	6%	8%	10%	10%	10%
47 Second V/F (base frequency)		87Hz	87Hz	87Hz	87Hz	87Hz
48 Second stall prevention operation current	20,0 to 80,0 %	66,6%	44,4%	50%	51,7%	41,2%
49 Second stall prevention operation frequency		9999	9999	9999	9999	9999
51 Second electronic thermal O/L relay	1,50 to 4,00 A	9999	9999	9999	9999	9999
52 DU/PU main display data selection		11	11	11	11	11
54 FM terminal function selection	1 to 7	1	1	1	1	1
55 Frequency monitoring reference	100 to 150 Hz	120Hz	120Hz	120Hz	120Hz	120Hz
56 Current monitoring reference	6,00 to 34,00 A	9A	12A	17A	17A	25A
65 Retry selection		4	4	4	4	4
66 Stall prevention operation reduction starting frequen		87Hz	87Hz	87Hz	87Hz	87Hz
67 Number of retries at alarm occurrence		3	3	3	3	3
70 Special regenerative brake duty	10,0 to 15,0 %	10%	10%	10%	10%	10%
71 Applied motor		3	3	3	3	3
72 PWM frequency selection		15	15	15	15	15
73 Analog input selection		0	0	0	0	0
74 Input filter time constant		1	1	1	1	1
80 Motor capacity		2,2KW	2,2KW	3KW	3KW	4KW
81 Number of motor poles		14	14	14	14	14
83 Motor rated voltage		400V	400V	400V	400V	400V
84 Rated motor frequency		87Hz	87Hz	87Hz	87Hz	87Hz
89 Speed control gain (magnetic flux vector)		35%	35%	35%	35%	35%
95 Online auto tuning selection		1	1	1	1	1
96 Auto tuning setting/status		1	1	1	1	1
110 Third acceleration/deceleration time	0 to 2 sec.	0sec.	0sec.	0sec.	0sec.	0sec.
111 Third deceleration time		0sec.	0sec.	0sec.	0sec.	0sec.
112 Third torque boost		9%	9%	9%	9%	9%
113 Third V/F (base frequency)		87Hz	87Hz	87Hz	87Hz	87Hz
114 Third stall prevention operation current		40%	26,7%	20%	20%	14,2%
115 Thrid stall prevention operation frequency		99Hz	99Hz	99Hz	99Hz	99Hz

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Lean-Lift

## 1. Setting values for Hänel Lean-Lift with economy-speed drives (continued)

			ES11	ES21	ES31	ES41	ES51
			FR-A 740 ES				
			- 00083	- 00126	- 00170	- 00170	- 00250
			2,2 KW	3,7 KW	5,5 KW	5,5 KW	7,5 KW
Parameter	Setting Range MP12D/N	ES_150	ES_250	ES_500	ES_700	ES_1000	
		PMS4	PMS5	PMS6	PMS7	PMS8	
145	PU display language selection	0 to 7	1	1	1	1	1
150	Output current detection level		45,8%	33,3%	37,5%	37,5%	32,5%
151	Output current detection signal delay time		0,1sec.	0,1sec.	0,1sec.	0,1sec.	0,1sec.
155	RT signal function validity condition selection		1	1	1	1	1
156	Stall prevention operation selection		9	9	9	9	9
157	OL signal output timer		0sec.	0sec.	0sec.	0sec.	0sec.
158	Output AM Torque		7	7	7	7	7
180	RL terminal function selection		3	3	3	3	3
181	RM terminal function selection		18	18	18	18	18
182	RH terminal function selection		9	9	9	9	9
183	RT terminal function selection		18	18	18	18	18
185	JOG terminal function selection		17	17	17	17	17
190	RUN terminal function selection		20	20	20	20	20
192	IPF terminal function selection		164	164	164	164	164
193	OL terminal function selection		12	12	12	12	12
194	FU terminal function selection		4	4	4	4	4
195	ABC1 terminal function selection		199	199	199	199	199
244	Cooling fan operation selection		1	1	1	1	1
251	Output phase failure protection selection		1	1	1	1	1
265	Power-failure deceleration time 2		0sec.	0sec.	0sec.	0sec.	0sec.
278	Brake opening frequency		1,3Hz	1,3Hz	1,3Hz	1,3Hz	1,3Hz
279	Brake opening current		20%	20%	20%	20%	20%
280	Brake opening current detection time		0,1sec.	0,1sec.	0,1sec.	0,1sec.	0,1sec.
281	Brake operation time at start		0,3sec.	0,3sec.	0,3sec.	0,3sec.	0,3sec.
282	Brake operation frequency		2Hz	2Hz	2Hz	2Hz	2Hz
283	Brake operation time at stop		0,1sec.	0,1sec.	0,1sec.	0,1sec.	0,1sec.
284	Deceleration detection function selection		0	0	0	0	0
292	Automatic acceleration/deceleration		8	8	8	8	8
331	RS-485 FU-Adress		0	0	0	0	0
332	RS-485 Baud		96	96	96	96	96
333	RS-485 stop-bit		0	0	0	0	0
335	RS-485 communication retry count		9999	9999	9999	9999	9999
336	RS-485 communication check time interval		9999	9999	9999	9999	9999
342	Communication EEPROM write selection		1	1	1	1	1
450	Second applied motor	0 to 20 and 9999	9999	9999	9999	9999	9999
451	Second motor control method selection	20 and 9999	9999	9999	9999	9999	9999
453	Second Motor capacity	0,0 to 2,0 KW	0,4KW	0,4KW	0,55KW	0,55KW	0,75KW
454	Number of second motor poles		4	4	4	4	4
456	Rated second motor voltage		400V	400V	400V	400V	400V
457	Rated second motor frequency		87Hz	87Hz	87Hz	87Hz	87Hz
574	Second Motor online tuning	0 or 1	1	1	1	1	1
506	Paramter 1 for User		23	23	23	23	23
507	Paramter 2 for user		1	1	1	1	1
684	Tuning data increment switchover		1	1	1	1	1
730	Output current stability waiting time		5	5	5	5	5
731	Output current filter		5	5	5	5	5
732	Output phase failure deection time		16	16	16	16	16
800	Control method selection		20	20	20	20	20
866	Torque Monitoring reference		150%	150%	150%	150%	150%
872	Input Phase fault		1	1	1	1	1
902	Terminal 2 frequency setting bias frequency		0Hz	0Hz	0Hz	0Hz	0Hz
903	Terminal 2 frequency setting gain frequency		150Hz	150Hz	150Hz	150Hz	150Hz
			100%	100%	100%	100%	100%

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Lean-Lift

## 2. Setting values for Hänel Lean-Lift with high-speed drive

		HS21 HS22	HS31 HS32	HS42	HS51	
		FR-A 740 HS				
		- 00170	- 00250	- 00250	- 00250	
		5,5 KW	7,5 KW	7,5 KW	7,5 KW	
		HS_250	HS_500	HS_700	HS_1000	
Parameter	Setting Range MP12D/N	PMS1	PMS2	PMS9	PMS3	
1	Maximum frequency	120Hz	120Hz	120Hz	120Hz	
2	Minimum frequency	1,5Hz	1,5Hz	1,5Hz	3Hz	
7	Acceleration time	1,5sec.	1,5sec.	1,5sec.	1,5sec.	
8	Deceleration time	1,1sec.	1,1sec.	1,1sec.	0,5sec.	
9	Electronic thermal O/L relay	8,00 to 17,00 A	11A	12,4A	11A	14,7A
11	DC injection brake operation time		0sec.	0sec.	0sec.	0sec.
13	Starting frequency		0,5Hz	0,5Hz	0,5Hz	0,5Hz
14	Load pattern selection		0	0	0	0
18	High speed maximum frequency	120 – 150 Hz	150Hz	150Hz	120Hz	128Hz
19	Base frequency voltage		400V	400V	400V	400V
20	Acceleration/deceleration reference frequency		200Hz	200Hz	200Hz	200Hz
21	Acceleration/deceleration time increments		1	1	1	1
22	Stall prevention operation level (torque limit level )	115,0 to 140,0 %	125%	125%	117,5%	125%
23	Stall prevention operation level compensation fact		150%	140%	100%	140%
29	Acceleration/deceleration pattern selection		0	0	0	0
30	Regenerative function selection		1	1	1	1
42	Output frequency detection		0,5Hz	0,5Hz	0,5Hz	0,5Hz
43	Output frequency detection for reverse rotation		9999	9999	9999	9999
44	Second acceleration/deceleration time		1,2sec.	1,2sec.	1,2sec.	1,2sec.
45	Second deceleration time		0,2sec.	0,2sec.	0,2sec.	0,2sec.
46	Second torque boost	4,0 to 15,0 %	8%	10%	10%	10%
47	Second V/F (base frequency)		87Hz	87Hz	87Hz	87Hz
48	Second stall prevention operation current	20,0 to 80,0 %	33%	40%	36,5%	41,2%
49	Second stall prevention operation frequency		9999	9999	9999	9999
51	Second electronic thermal O/L relay	1,50 to 4,00 A	9999	9999	9999	9999
52	DU/PU main display data selection		11	11	11	11
54	FM terminal function selection	1 to 7	1	1	1	1
55	Frequency monitoring reference	100 to 150 Hz	150Hz	150Hz	150Hz	128Hz
56	Current monitoring reference	6,00 to 34,00 A	17A	25A	25A	25A
65	Retry selection		4	4	4	4
66	Stall prevention operation reduction starting freque		100Hz	70Hz	55Hz	70Hz
67	Number of retries at alarm occurrence		3	3	3	3
70	Special regenerative brake duty	10,0 to 15,0 %	10%	10%	10%	10%
71	Applied motor		3	3	3	3
72	PWM frequency selection		15	15	15	15
73	Analog input selection		0	0	0	0
74	Input filter time constant		1	1	1	1
80	Motor capacity		4KW	4KW	5,5KW	5,5KW
81	Number of motor poles		14	14	14	14
83	Motor rated voltage		400V	400V	400V	400V
84	Rated motor frequency		64Hz	64Hz	50Hz	64Hz
89	Speed control gain (magnetic flux vector)		35%	35%	35%	35%
95	Online auto tuning selection		1	1	1	1
96	Auto tuning setting/status		1	1	1	1
110	Third acceleration/deceleration time	0 to 2 sec.	0sec.	0sec.	0sec.	0sec.
111	Third deceleration time		0sec.	0sec.	0sec.	0sec.
112	Third torque boost		9%	9%	9%	9%
113	Third V/F (base frequency)		87Hz	87Hz	87Hz	87Hz
114	Third stall prevention operation current		20%	14,2%	14,2%	14,2%
115	Thrid stall prevention operation frequency		99Hz	99Hz	99Hz	99Hz

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Lean-Lift

## 2. Setting values for Hänel Lean-Lift with high-speed drive (continued)

		HS21 HS22	HS31 HS32	HS42	HS51
		FR-A 740 HS			
		- 00170	- 00250	- 00250	- 00250
		5,5 KW	7,5 KW	7,5 KW	7,5 KW
Parameter	Setting Range MP12D/N	HS_250	HS_500	HS_700	HS_1000
		PMS1	PMS2	PMS9	PMS3
145	PU display language selection	0 to 7	1	1	1
150	Output current detection level		29,2%	26,5%	32,5%
151	Output current detection signal delay time		0,1sec.	0,1sec.	0,1sec.
155	RT signal function validity condition selection		1	1	1
156	Stall prevention operation selection		9	9	9
157	OL signal output timer		0sec.	0sec.	0sec.
158	Output AM Torque		7	7	7
180	RL terminal function selection		3	3	3
181	RM terminal function selection		18	18	18
182	RH terminal function selection		9	9	9
183	RT terminal function selection		18	18	18
185	JOG terminal function selection		17	17	17
190	RUN terminal function selection		20	20	20
192	IPF terminal function selection		164	164	164
193	OL terminal function selection		12	12	12
194	FU terminal function selection		4	4	4
195	ABC1 terminal function selection		199	199	199
244	Cooling fan operation selection		1	1	1
251	Output phase failure protection selection		1	1	1
265	Power-failure deceleration time 2		0sec.	0sec.	0sec.
278	Brake opening frequency		0,5Hz	0,5Hz	1,3Hz
279	Brake opening current		20%	20%	20%
280	Brake opening current detection time		0,1sec.	0,1sec.	0,1sec.
281	Brake operation time at start		0,3sec.	0,3sec.	0,3sec.
282	Brake operation frequency		1,5Hz	1,5Hz	2Hz
283	Brake operation time at stop		0,1sec.	0,1sec.	0,1sec.
284	Deceleration detection function selection		0	0	0
292	Automatic acceleration/deceleration		8	8	8
331	RS-485 FU-Adress		0	0	0
332	RS-485 Baud		96	96	96
333	RS-485 stop-bit		0	0	0
335	RS-485 communication retry count		9999	9999	9999
336	RS-485 communication check time interval		9999	9999	9999
342	Communication EEPROM write selection		1	1	1
450	Second applied motor	0 to 20 and 9999	9999	9999	9999
451	Second motor control method selection	20 and 9999	9999	9999	9999
453	Second Motor capacity	0,0 to 2,0 KW	0,4KW	0,55KW	0,75KW
454	Number of second motor poles		4	4	4
456	Rated second motor voltage		400V	400V	400V
457	Rated second motor frequency		87Hz	87Hz	87Hz
574	Second Motor online tuning	0 or 1	1	1	1
506	Paramter 1 for User		23	23	23
507	Paramter 2 for user		1	1	1
684	Tuning data increment switchover		1	1	1
730	Output current stability waiting time		5	5	5
731	Output current filter		5	5	5
732	Output phase failure deection time		16	16	16
800	Control method selection		20	20	20
866	Torque Monitoring reference		150%	150%	150%
872	Input Phase fault		1	1	1
902	Terminal 2 frequency setting bias frequency		0Hz	0Hz	0Hz
903	Terminal 2 frequency setting gain frequency		150Hz	150Hz	150Hz
			100%	100%	100%