

TeSys motor starters - open version

Star-delta starters with circuit breaker and overload protection built into the circuit breaker

1.5 to 110 kW at 400/415 V: type 1 coordination

Maximum operating rate: LC3 K: 12 starts/hour; LC3 D: 30 starts/hour.

Maximum starting time: 30 seconds.

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3								Circuit breaker		Star-delta contactors
400/415 V				440 V				Reference	Setting range of thermal trips	Reference
P	I _e	I _{rD} ⁽¹⁾	I _q ⁽²⁾	P	I _e	I _{rD} ⁽¹⁾	I _q ⁽²⁾			
kW	A	A	kA	kW	A	A	kA		A	
1.5	3.6	2	50	1.5	3.06	1.8	50	GV2ME08	2.5...4	LC3K06
2.2	4.9	2.9	50	2.2	4.42	2.6	50	GV2ME10	4...6.3	LC3K06
—	—	—	—	3	5.77	3.3	50			
3	6.5	3.8	50	—	—	—	—	GV2ME14	6...10	LC3K06
4	8.5	4.9	50	4	7.9	4.6	15			
5.5	11.5	6.4	15	5.5	10.4	6	8	GV2ME16	9...14	LC3K06
7.5	15.5	8.6	15	7.5	13.7	7.9	8	GV2ME20	13...18	LC3K09
—	—	—	—	9	16.9	9.8	8	GV2ME20	13...18	LC3D12A
9	18.1	10	15	11	20.1	12	6	GV2ME21	17...23	LC3D12A
11	22	12	15	—	—	—	—	GV2ME22	20...25	LC3D12A
15	29	17	10	15	26.5	15	6	GV2ME32	24...32	LC3D18A
18.5	35	20	50	18.5	32.8	19	50	GV3P40	30...40	LC3D18A
—	—	—	—	22	39	23	50	GV3P50	37...50	LC3D32A
22	41	24	50	30	51.5	30	50	GV3P50	37...50	LC3D32A
30	55	33	50	30	51.5	30	50	GV3P65	48...65	LC3D32A
37	66	40	50	37	64	37	50	GV3P65	48...65	3 x LC1D40A ⁽³⁾
37	66	40	100	37	64	37	70	GV4P80	40...80	3 x LC1D40A ⁽³⁾
—	—	—	—	45	76	44	70	GV4P80	40...80	2 x LC1D50A + 1 x LC1D40A ⁽³⁾
45	80	47	100	—	—	—	—	GV4P115	65...115	2 x LC1D50A + 1 x LC1D40A ⁽³⁾
55	97	58	100	55	90	52	70	GV4P115	65...115	2 x LC1D65A + 1 x LC1D40A ⁽³⁾
75	132	78	35	75	125	72	35	GV7RE150	90...150	LC3D80
—	—	—	—	90	146	84	35	GV7RE150	90...150	LC3D115
90	160	95	35	110	178	103	35	GV7RE220	132...220	LC3D115
110	195	115	35	—	—	—	—			
—	—	—	—	132	215	124	35	GV7RE220	132...220	LC3D150

⁽¹⁾ I_{rD}: current in the motor windings in delta connection.

⁽²⁾ The breaking performance of circuit breakers **GV2 ME** can be increased by adding a current limiter **GV1 L3**, see page B6/23.

⁽³⁾ For mounting 3 contactors **LC1 D●●A**, star-delta starter kit **LAD 9SD3** must be ordered separately, see page B8/31.

TeSys motor starters - open version

Star-delta starters with circuit breaker and overload protection built into the circuit breaker

1.5 to 110 kW at 400/415 V: type 2 coordination

Maximum operating rate: LC1 D: 30 starts/hour; LC1 F: 12 starts/hour.

Maximum starting time: LC1 D: 30 seconds; LC1 F: 20 seconds.

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3						Circuit breaker		Star-delta contactors
400/415 V			440 V			Reference	Setting range of thermal trips	Reference
P	I _e	I _q	P	I _e	I _q ⁽¹⁾			
kW	A	kA	kW	A	kA		A	
1.5	3.6	130	1.5	3.06	130	GV2P08	2.5...4	3 x LC1D09 ⁽²⁾
2.2	4.9	130	2.2	4.42	130	GV2P10	4...6.3	3 x LC1D18 ⁽³⁾
–	–	–	3	5.77	130	GV2P10	4...6.3	3 x LC1D18 ⁽³⁾
3	6.5	130	–	–	–	GV2P14	6...10	3 x LC1D18 ⁽³⁾
4	8.5	130	4	7.9	130	GV2P14	6...10	3 x LC1D18 ⁽³⁾
5.5	11.5	130	5.5	10.4	50	GV2P16	9...14	3 x LC1D25 ⁽³⁾
–	–	–	7.5	13.7	50	GV2P16	9...14	3 x LC1D25 ⁽³⁾
7.5	15.5	50	9	16.9	20	GV2P20	13...18	3 x LC1D25 ⁽³⁾
9	18.1	50	11	20.1	20	GV2P21	17...23	3 x LC1D25 ⁽³⁾
11	22	50	–	–	–	GV2P22	20...25	3 x LC1D25 ⁽³⁾
15	29	50	15	26.5	50	GV3P32	23...32	3 x LC1D40A ⁽⁴⁾
18.5	35	50	–	–	–	GV3P40	30...40	2 x LC1D50A + 1 x LC1D40A ⁽³⁾
–	–	–	18.5	32.8	50	GV3P40	30...40	2 x LC1D65A + 1 x LC1D40A ⁽⁴⁾
22	41	50	–	–	–	GV3P50	37...50	2 x LC1D50A + 1 x LC1D40A ⁽³⁾
–	–	–	22	39	50	GV3P50	37...50	2 x LC1D65A + 1 x LC1D40A ⁽⁴⁾
30	55	50	30	51.5	50	GV3P65	48...65	2 x LC1D65A + 1 x LC1D40A ⁽⁴⁾
37	66	100	45	76	70	GV4P80	40...80	3 x LC1D80 ⁽⁵⁾
–	–	–	37	64	70	GV4P80	40...80	3 x LC1D65A ⁽⁴⁾
45	80	100	–	–	–	GV4P115	65...115	3 x LC1D115 ⁽⁶⁾
55	97	100	55	90	70	GV4P115	65...115	3 x LC1D115 ⁽⁶⁾
75	132	70	75	125	65	GV7RS150	90...150	3 x LC1D150 ⁽⁶⁾
–	–	–	90	146	65	GV7RS150	90...150	3 x LC1D150 ⁽⁶⁾
90	160	70	110	178	65	GV7RS220	132...220	3 x LC1F185 ⁽⁷⁾
110	195	70	132	215	65	GV7RS220	132...220	3 x LC1F225 ⁽⁷⁾

⁽¹⁾ The breaking performance of circuit breakers GV2 P can be increased by adding a current limiter GV1 L3, see page B6/54.

⁽²⁾ For mounting 3 contactors LC1 D09, star-delta starter kit LAD 91217 must be ordered separately, see page B8/31.

⁽³⁾ For mounting 3 contactors LC1 D18 or LC1 D25, star-delta starter kit LAD 93217 must be ordered separately, see page B8/31.

⁽⁴⁾ For mounting 3 contactors LC1 D65A, star-delta starter kit LAD 9SD3 must be ordered separately, see page B8/31.

⁽⁵⁾ For mounting 3 contactors LC1 D80, star-delta starter kit LA9 D8017 must be ordered separately, see page B8/31.

⁽⁶⁾ For mounting 3 contactors LC1 D115 or LC1 D150, see A2/15.

⁽⁷⁾ For mounting 3 contactors LC1 F185 or LC1 F225, see pages A2/17 and A2/19.

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Star-delta starters with circuit breaker, contactors and thermal overload relay

1.5 to 315 kW at 400/415 V: type 1 coordination

Maximum operating rate: LC3 K and LC3 F: 12 starts/hour; LC3 D: 30 starts/hour.

Maximum starting time: LC3 K and LC3 D: 30 seconds; LC3 F: 20 seconds.

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3				Circuit breaker				Star-delta contactors		Thermal overload relay	
400/415 V				440 V				Reference		Reference	
P	Ie	IrD ⁽¹⁾	Iq	P	Ie	IrD ⁽¹⁾	Iq	Reference	Rating Irm ⁽²⁾	Reference	Setting range
kW	A	A	kA	kW	A	A	kA		A		A
—	—	—	—	1.5	3.06	1.8	50	LC3D32A	4	LC3K06	LR2K0308
1.5	3.6	2	50	2.2	4.42	3	50				1.8...2.6
2.2	4.9	3	50	3	5.77	3	50	GV2LE10	6.3	LC3K06	LR2K0310
3	6.5	4	50	—	—	—	—	GV2LE14	10	LC3K06	LR2K0312
—	—	—	—	4	7.9	5	50	GV2LE10	6.3	LC3K06	LR2K0312
4	8.5	5	50	—	—	—	—	GV2LE14	10	LC3K06	LR2K0312
—	—	—	—	5.5	10.4	6	15	GV2LE14	10	LC3K06	LR2K0314
5.5	11.5	6	15	—	—	—	—	GV2LE16	14	LC3K06	LR2K0314
—	—	—	—	7.5	13.7	8	8	GV2LE16	14	LC3K09	LR2K0316
7.5	15.5	9	15	—	—	—	—	GV2LE20	18	LC3K09	LR2K0316
—	—	—	—	9	16.9	1	8	GV2LE16	14	LC3D12A	LRD16
9	18.1	10	15	—	—	—	—	GV2LE22	25	LC3K12	LR2K0316
—	—	—	—	11	20.1	12	8	GV2LE20	18	LC3K12	LR2K0321
11	22	12	15	—	—	—	—	GV2LE22	25	LC3K12	LR2K0321
—	—	—	—	15	26.5	15	6	GV2LE22	25	LC3D18A	LRD21
15	29	16	10	—	—	—	—	GV2LE32	32	LC3D18A	LRD21
18.5	35	20	50	18.5	32.8	19	50	GV3L40	40	LC3D18A	LRD22
22	41	24	50	22	39	23	50	GV3L50	50	LC3D32A	LRD32
—	—	—	—	30	51.5	30	50	GV3L65	65	LC3D32A	LRD32
30	55	33	50	—	—	—	—	GV3L65	65	LC3D32A	LRD35
—	—	—	—	37	64	37	50	GV3L65	65	3 x LC1D40A ⁽⁴⁾	LRD340
37	66	40	100	—	—	—	—	GV4L80	80	3 x LC1D40A ⁽⁴⁾	LRD350
—	—	—	—	37	64	37	70	GV4L80	80	3 x LC1D40A ⁽⁴⁾	LRD340
—	—	—	—	45	76	44	70	GV4L80	80	2 x LC1D50A + 1 x LC1D40A ⁽⁴⁾	LRD350
45	80	47	100	—	—	—	—	GV4L115	115	2 x LC1D50A + 1 x LC1D40A ⁽⁴⁾	LRD350
55	97	58	100	55	90	52	70	GV4L115	115	2 x LC1D50A + 1 x LC1D40A ⁽⁴⁾	LRD350
—	—	—	—	75	125	72	⁽³⁾	NSX160●MA ⁽³⁾	150	LC3D80	LRD3363
75	132	78	⁽³⁾	—	—	—	—	NSX160●MA ⁽³⁾	150	LC3D80	LRD3363
—	—	—	—	90	146	85	⁽³⁾	NSX160●MA ⁽³⁾	150	LC3D115	LRD4365
90	160	96	⁽³⁾	110	178	103	⁽³⁾	NSX250●MA ⁽³⁾	220	LC3D115	LRD4365
—	—	—	—	132	215	125	⁽³⁾	NSX250●MA ⁽³⁾	220	LC3D150	LRD4369
110	195	116	⁽³⁾	—	—	—	—	NSX250●MA ⁽³⁾	220	LC3D115	LRD4367
—	—	—	—	160	256	148	⁽³⁾	NSX400●+ Micrologic 1.3M ⁽³⁾	320	LC3D150	LR9D5369
—	—	—	—	200	321	186	⁽³⁾	NSX630●+ Micrologic 1.3M ⁽³⁾	500	LC3F225	LR9F5371
132	230	139	⁽³⁾	—	—	—	—	NSX400●+ Micrologic 1.3M ⁽³⁾	320	LC3D150	LRD4369
160	280	165	⁽³⁾	—	—	—	—	NSX400●+ Micrologic 1.3M ⁽³⁾	320	LC3F185	LR9F5371
200	350	204	⁽³⁾	220	353	204	⁽³⁾	NSX630●+ Micrologic 1.3M ⁽³⁾	500	LC3F225	LR9F5371
220	388	225	⁽³⁾	250	401	233	⁽³⁾	NSX630●+ Micrologic 1.3M ⁽³⁾	500	LC3F265	LR9F7375
280	480	278	⁽³⁾	—	—	—	—	NSX630●+ Micrologic 1.3M ⁽³⁾	500	LC3F330	LR9F7375
—	—	—	—	315	505	295	⁽³⁾	NSX800●+ Micrologic 5.0 - LR off	800	LC3F330	LR9F7375
315	540	322	⁽³⁾	355	518	300	⁽³⁾	NSX800●+ Micrologic 5.0 - LR off	800	LC3F330	LR9F7375
—	—	—	—	375	575	334	⁽³⁾	NSX800●+ Micrologic 5.0 - LR off	800	LC3F400	LR9F7379

⁽¹⁾ IrD: current in the motor windings in delta connection.⁽²⁾ Irm: setting current of the magnetic trip.⁽³⁾ Products marketed under the Merlin Gerin brand. Reference to be completed by replacing the ● with the breaking performance code:

Breaking performance Iq (kA)	NSX100●MA		NSX160●MA, NSX250●MA		NSX400●, NSX630●		NS800●
400/415 V	36	70	36	70	70	150	70
440 V	35	65	35	65	65	130	65
Code	F	H	F	H	H	L	H

⁽⁴⁾ For mounting 3 contactors LC1 D●●A, star-delta starter kit LAD 9SD3 must be ordered separately, see page B8/31.

TeSys motor starters - open version

Star-delta starters with circuit breaker, contactors and thermal overload relay

1.5 to 250 kW at 400/415 V: type 2 coordination

Maximum operating rate: LC3 D: 30 starts/hour; LC3 F: 12 starts/hour.

Maximum starting time: LC3 D: 30 seconds; LC3 F: 20 seconds.

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3						Circuit breaker			Star-delta contactors	Thermal overload relay	
400/415 V			440 V			Reference	Rating	I _{rm} ⁽¹⁾		Reference	Setting range
P	I _e	I _q	P	I _e	I _q		A	A			A
kW	A	kA	kW	A	kA						
1.5	3.6	130	1.5	3.06	130	GV2L08	4	51	3 x LC1D09	LRD08	2.5...4
2.2	4.9	130	2.2	4.42	130	GV2L10	6.3	78	3 x LC1D09	LRD10	4...6
3	6.5	130	3	5.77	130						
—	—	—	4	7.9	20	GV2L14	10	138	3 x LC1D18	LRD14	7...10
4	8.5	130	—	—	—	GV2L14	10	138	3 x LC1D18	LRD16	9...13
5.5	11.5	50	5.5	10.4	20	GV2L16	14	170	3 x LC1D25	LRD16	9...13
7.5	15.5	50	7.5	13.7	20	GV2L20	18	223	3 x LC1D25	LRD21	12...18
—	—	—	9	16.9	20	GV2L22	25	327	3 x LC1D25	LRD21	12...18
9	18.1	50	—	—	—	GV2L22	25	327	3 x LC1D25	LRD22	16...24
11	22	50	11	20.1	20						
15	29	50	15	26.5	50	GV3L32	32	448	3 x LC1D40A ⁽²⁾	LRD332	23...32
18.5	35	50	—	—	—	GV3L40	40	560	2 x LC1D50A + 1 x LC1D40A ⁽²⁾	LRD340	30...40
—	—	—	18.5	32.8	50	GV3L40	40	560	2 x LC1D65A + 1 x LC1D40A ⁽²⁾	LRD340	30...40
22	41	50	—	—	—	GV3L50	50	700	2 x LC1D50A + 1 x LC1D40A ⁽²⁾	LRD350	37...50
—	—	—	22	39	50	GV3L50	50	700	2 x LC1D65A + 1 x LC1D40A ⁽²⁾	LRD350	37...50
30	55	50	30	51.5	50	GV3L65	65	910	2 x LC1D65A + 1 x LC1D40A ⁽²⁾	LRD365	48...65
—	—	—	37	64	50	GV3L65	65	910	3 x LC1D80	LRD3359	48...65
37	66	100	—	—	—	GV4L80	80	640	3 x LC1D80	LRD3363	63...80
—	—	—	45	76	70	GV4L80	80	800	3 x LC1D80	LRD3363	63...80
45	80	100	—	—	—	GV4L115	115	805	3 x LC1D115	LR9D5367	60...100
—	—	—	55	90	70	GV4L115	115	920	3 x LC1D115	LR9D5367	60...100
55	97	100	—	—	—	GV4L115	115	920	3 x LC1D115	LR9D5369	90...150
55	97	⁽³⁾	—	—	—	NSX160●MA ⁽³⁾	150	1200	3 x LC1D115	LR9D5369	90...150
—	—	—	75	125	⁽³⁾	NSX160●MA ⁽³⁾	150	1200	3 x LC1D150	LR9D5369	90...150
75	132	⁽³⁾	90	146	⁽³⁾	NSX160●MA ⁽³⁾	150	1200	3 x LC1D150	LR9D5369	90...150
90	160	⁽³⁾	110	178	⁽³⁾	NSX250●MA ⁽³⁾	220	1760	3 x LC1F185	LR9F5371	132...220
110	195	⁽³⁾	—	—	—	NSX250●MA ⁽³⁾	220	1760	3 x LC1F225	LR9F5371	132...220
—	—	—	132	215	⁽³⁾	NSX250●MA ⁽³⁾	220	1760	3 x LC1F225	LR9F7375	200...330
132	230	⁽³⁾	160	256	⁽³⁾	NSX400● + Micrologic 1.3M ⁽³⁾	320	2240	3 x LC1F265	LR9F7375	200...330
160	280	⁽³⁾	—	—	—	NSX400● + Micrologic 1.3M ⁽³⁾	320	2560	3 x LC1F330	LR9F7375	200...330
—	—	—	200	321	⁽³⁾	NSX400● + Micrologic 1.3M ⁽³⁾	320	2880	3 x LC1F330	LR9F7379	300...500
200	350	⁽³⁾	220	353	⁽³⁾	NSX630● + Micrologic 1.3M ⁽³⁾	500	3150	3 x LC1F400	LR9F7379	300...500
220	388	⁽³⁾	250	401	⁽³⁾	NSX630● + Micrologic 1.3M ⁽³⁾	500	3500	3 x LC1F400	LR9F7379	300...500
250	430	⁽³⁾	—	—	—	NSX630● + Micrologic 1.3M ⁽³⁾	500	4000	3 x LC1F500	LR9F7379	300...500

⁽¹⁾ I_{rm}: setting current of the magnetic trip.⁽²⁾ For mounting 3 contactors LC1 D●●A, star-delta starter kit LAD 9SD3 must be ordered separately, see page B8/31.⁽³⁾ Products marketed under the Merlin Gerin brand. Reference to be completed by replacing the ● with the breaking performance code:

Breaking performance I _q (kA)	NSX100●MA		NSX160●MA, NSX250●MA		NSX400●, NSX630●	
400/415 V	36	70	36	70	70	150
440 V	35	65	35	65	65	130
Code	F	H	F	H	H	L