



MOTOR CONTROL & MOTORS

6

Discover our selection of cutting-edge Motor Control Solutions, meticulously curated to enhance operational precision and elevate productivity to new heights. From advanced variable frequency drives to robust motor starters, our product lineup ensures seamless integration and reliable performance across diverse industrial applications.

VLT AUTOMATION DRIVE

Features

- Designed for easy integration in any application.
- Designed with fast and easy start-up in mind.
- Extensive functionality for high-performance operation.
- Leveraging digitalization to reduce maintenance costs.
- Flexible, modular and adaptable. Built to last.
- VLT® FlexConcept® – quicker and more cost effective.
- Application flexibility to boost your business.
- Integrated motion controller – for positioning and synchronization applications
- Achieve maximum availability of your system – with condition-based monitoring.
- Drives with higher IP Ratings are available on request



Automation Drive FC302 - Three Phase Input (380 - 500VAC +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20/21	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC302-PK37-T5-A2-20	0,37	1,3	2,1	A2	90 x 268 x 205
FC302-PK55-T5-A2-20	0,55	1,8	2,9	A2	90 x 268 x 205
FC302-PK75-T5-A2-20	0,75	2,4	3,8	A2	90 x 268 x 205
FC302-P1K1-T5-A2-20	1,1	3	4,8	A2	90 x 268 x 205
FC302-P1K5-T5-A2-20	1,5	4,1	6,6	A2	90 x 268 x 205
FC302-P2K2-T5-A2-20	2,2	5,6	9	A2	90 x 268 x 205
FC302-P3K0-T5-A2-20	3	7,2	11,5	A2	90 x 268 x 205
FC302-P4K0-T5-A2-20	4	10	16	A2	90 x 268 x 205
FC302-P5K5-T5-A3-20	5,5	13	20,8	A3	130 x 268 x 205
FC302-P7K5-T5-A3-20	7,5	16	25,6	A3	130 x 268 x 205
FC302-P11K-T5-B3-20	11	32	35,2	B3	165 x 399 x 249
FC302-P15K-T5-B3-20	15	37,5	41,3	B3	165 x 399 x 249
FC302-P18K-T5-B4-20	18,5	44	48,4	B4	230 x 520 x 242
FC302-P22K-T5-B4-20	22	61	67,1	B4	230 x 520 x 242
FC302-P30K-T5-B4-20	30	73	80,3	B4	230 x 520 x 242
FC302-P37K-T5-C3-20	37	90	99	C3	308 x 550 x 333
FC302-P45K-T5-C3-20	45	106	117	C3	308 x 550 x 333
FC302-P55K-T5-C4-20	55	147	162	C4	370 x 660 x 333
FC302-P75K-T5-C4-20	75	177	195	C4	370 x 660 x 333
FC302-N90K-T5-D3H-20	90	212	233	D3H	250 x 909 x 375
FC302-N110K-T5-D3H-20	110	260	286	D3H	250 x 909 x 375
FC302-N132K-T5-D3H-20	132	315	347	D3H	250 x 909 x 375
FC302-N160K-T5-D4H-20	160	395	435	D4H	350 x 1122 x 375
FC302-N200K-T5-D4H-20	200	480	528	D4H	350 x 1122 x 375
FC302-N250K-T5-D4H-20	250	588	647	D4H	350 x 1122 x 375
FC302-N315K-T5-E1H-21	315	658	724	E1H	602 x 2043 x 513
FC302-N355K-T5-E1H-21	355	745	820	E1H	602 x 2043 x 513
FC302-N400K-T5-E1H-21	400	800	880	E1H	602 x 2043 x 513
FC302-N450K-T5-E2H-21	450	880	968	E2H	698 x 2043 x 513
FC302-N500K-T5-E2H-21	500	990	1089	E2H	698 x 2043 x 513
FC302-P560K-T5-F3-21	560	1120	1232	F3	2000 x 2204 x 606
FC302-P630K-T5-F3-21	630	1260	1386	F3	2000 x 2204 x 606
FC302-P710K-T5-F4-21	710	1460	1606	F4	2400 x 2204 x 606
FC302-P800K-T5-F4-21	800	1720	1892	F4	2400 x 2204 x 606

VLT AUTOMATION DRIVE

Automation Drive FC302 - Three Phase Input (**525 - 600VAC** +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC302-PK75-T6-A3-20	0,75	1,7	2,7	A3	130 x 268 x 205
FC302-P1K1-T6-A3-20	1,1	2,4	3,8	A3	130 x 268 x 205
FC302-P1K5-T6-A3-20	1,5	2,7	4,3	A3	130 x 268 x 205
FC302-P2K2-T6-A3-20	2,2	3,9	6,2	A3	130 x 268 x 205
FC302-P3K0-T6-A3-20	3	4,9	7,8	A3	130 x 268 x 205
FC302-P4K0-T6-A3-20	4	6,1	9,8	A3	130 x 268 x 205
FC302-P5K5-T6-A3-20	5,5	9	14,4	A3	130 x 268 x 205
FC302-P7K5-T6-A3-20	7,5	11	17,6	A3	130 x 268 x 205
FC302-P11K-T6-B3-20	11	22	24	B3	165 x 399 x 249
FC302-P15K-T6-B3-20	15	27	30	B3	165 x 399 x 249
FC302-P18K-T6-B4-20	18,5	34	37	B4	230 x 520 x 242
FC302-P22K-T6-B4-20	22	41	45	B4	230 x 520 x 242
FC302-P30K-T6-B4-20	30	52	57	B4	230 x 520 x 242
FC302-P37K-T6-C3-20	37	62	68	C3	308 x 550 x 333
FC302-P45K-T6-C3-20	45	83	91	C3	308 x 550 x 333
FC302-P55K-T6-C4-20	55	100	110	C4	370 x 660 x 333
FC302-P75K-T6-C4-20	75	131	144	C4	370 x 660 x 333

Automation Drive FC302 - Three Phase Input (**525 - 690VAC** +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20/21	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC302-P1K1-T7-A3-20	1,1	2,1	3,4	A3	130 x 268 x 205
FC302-P1K5-T7-A3-20	1,5	2,7	4,3	A3	130 x 268 x 205
FC302-P2K2-T7-A3-20	2,2	3,9	6,2	A3	130 x 268 x 205
FC302-P3K0-T7-A3-20	3	4,9	7,8	A3	130 x 268 x 205
FC302-P4K0-T7-A3-20	4	6,1	9,8	A3	130 x 268 x 205
FC302-P5K5-T7-A3-20	5,5	9	14,4	A3	130 x 268 x 205
FC302-P7K5-T7-A3-20	7,5	11	17,6	A3	130 x 268 x 205
FC302-P11K-T7-B2-21	11	19	20,9	B2	242 x 650 x 260
FC302-P15K-T7-B2-21	15	23	25,3	B2	242 x 650 x 260
FC302-P18K-T7-B2-21	18,5	28	30,8	B2	242 x 650 x 260
FC302-P22K-T7-B2-21	22	36	39,6	B2	242 x 650 x 260
FC302-P30K-T7-C2-21	30	43	47,3	C2	370 x 770 x 335
FC302-P37K-T7-C2-21	37	54	59,4	C2	370 x 770 x 335
FC302-P45K-T7-C2-21	45	65	71,5	C2	370 x 770 x 335
FC302-P55K-T7-C2-21	55	87	95,7	C2	370 x 770 x 335
FC302-P75K-T7-C2-21	75	105	115,5	C2	370 x 770 x 335
FC302-N90K-T7-D1H-21	90	137	151	D1H	325 x 901 x 378.4
FC302-N110K-T7-D1H-21	110	162	178	D1H	325 x 901 x 378.4
FC302-N132K-T7-D1H-21	132	201	221	D1H	325 x 901 x 378.4
FC302-N160K-T7-D2H-21	160	253	278	D2H	420 x 1107 x 378.4
FC302-N200K-T7-D2H-21	200	303	333	D2H	420 x 1107 x 378.4
FC302-N250K-T7-D2H-21	250	360	396	D2H	420 x 1107 x 378.4
FC302-N315K-T7-D2H-21	315	418	460	D2H	420 x 1107 x 378.4
FC302-N355K-T7-E1H-21	355	470	517	E1H	602 x 2043 x 513
FC302-N400K-T7-E1H-21	400	523	575	E1H	602 x 2043 x 513
FC302-N500K-T7-E1H-21	500	596	656	E1H	602 x 2043 x 513
FC302-N560K-T7-E1H-21	560	630	693	E1H	602 x 2043 x 513
FC302-N630K-T7-E2H-21	630	763	839	E2H	698 x 2043 x 513
FC302-N710K-T7-E2H-21	710	889	978	E2H	698 x 2043 x 513
FC302-P800K-T7-F3-21	800	988	1087	F3	2000 x 2204 x 606
FC302-P900K-T7-F4-21	900	1108	1219	F4	2000 x 2204 x 606
FC302-P1M0-T7-F4-21	1000	1317	1449	F4	2400 x 2204 x 606
FC302-P1M2-T7-F4-21	1200	1479	1627	F4	2400 x 2204 x 606

Technical Highlights

- Built-in smart logic controller making PLC unnecessary in many applications
- Reliable IP Rated Enclosures for indoor/outdoor mounting (up to IP66 on request)
- Dry run and over load pump protection
- Auto tuning of PI controllers saving time

Key Benefits

- User friendly award winning control panel (LCP)
- High energy saving efficiency (98%)
- Safe Operation and less wiring
- Broad usability in standard factory supplied enclosures


Aqua series FC202 - Single Phase Input (200-240VAC +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC202-P1K1-S2-B1-20	1,1	6,6	7,3	A3	130 x 268 x 205
FC202-P1K5-S2-B1-21	1,5	7,5	8,3	B1	242 x 480 x 260
FC202-P2K2-S2-B1-21	2,2	10,6	11,7	B1	242 x 480 x 260
FC202-P3K0-S2-B1-21	3	12,5	13,8	B1	242 x 480 x 260
FC202-P3K7-S2-B1-21	3,7	16,7	18,4	B1	242 x 480 x 260
FC202-P5K5-S2-B1-21	5,5	24,2	26,6	B1	242 x 480 x 260
FC202-P7K5-S2-B1-21	7,5	30,8	33,4	B2	242 x 650 x 260
FC202-P15K-S2-B1-21	15	59,4	65,3	C1	308 x 680 x 310
FC202-P22K-S2-B1-21	22	88	96,8	C2	370 x 770 x 335

Aqua series FC202 - Single Phase input (380-480VAC +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC202-PK37-T4-A2-20	0,37	1,3	1,4	A2	90 x 268 x 205
FC202-PK55-T4-A2-20	0,55	1,8	2	A2	90 x 268 x 205
FC202-PK75-T4-A2-20	0,75	2,4	2,6	A2	90 x 268 x 205
FC202-P1K1-T4-A2-20	1,1	3	3,3	A2	90 x 268 x 205
FC202-P1K5-T4-A2-20	1,5	4,1	4,5	A2	90 x 268 x 205
FC202-P2K2-T4-A2-20	2,2	5,6	6,2	A2	90 x 268 x 205
FC202-P3K0-T4-A2-20	3	7,2	7,9	A2	90 x 268 x 205
FC202-P4K0-T4-A2-20	4	10	11	A2	90 x 268 x 205
FC202-P5K5-T4-A3-20	5,5	13	14,3	A3	130 x 268 x 205
FC202-P7K5-T4-A3-20	7,5	16	17,6	A3	130 x 268 x 205
FC202-P11K-T4-B1-21	11	24	26,4	B1	242 x 480 x 260
FC202-P15K-T4-B1-21	15	32	35,2	B1	242 x 480 x 260
FC202-P18K-T4-B1-21	18,5	37,5	41,3	B1	242 x 480 x 260
FC202-P22K-T4-B2-21	22	44	48,4	B2	242 x 650 x 260
FC202-P30K-T4-B2-21	30	61	67,1	B2	242 x 650 x 260
FC202-P37K-T4-C1-21	37	73	80,3	C1	308 x 680 x 310
FC202-P45K-T4-C1-21	45	90	99	C1	308 x 680 x 310
FC202-P55K-T4-C1-21	55	106	117	C1	308 x 680 x 310
FC202-P75K-T4-C2-21	75	147	162	C2	370 x 770 x 335
FC202-P90K-T4-C2-21	90	177	195	C2	370 x 770 x 335
FC202-N110K-T4-D1H-21	110	212	233	D1H	325 x 901 x 378.4
FC202-N132K-T4-D1H-21	132	260	286	D1H	325 x 901 x 378.4
FC202-N160K-T4-D1H-21	160	315	347	D1H	325 x 901 x 378.4
FC202-N200K-T4-D2H-21	200	395	435	D2H	420 x 1107 x 378.4
FC202-N250K-T4-D2H-21	250	480	528	D2H	420 x 1107 x 378.4
FC202-N315K-T4-D2H-21	315	588	647	D2H	420 x 1107 x 378.4
FC202-N355K-T4-E1H-21	355	658	724	E1H	602 x 2043 x 513
FC202-N400K-T4-E1H-21	400	745	820	E1H	602 x 2043 x 513
FC202-N450K-T4-E1H-21	450	800	880	E1H	602 x 2043 x 513
FC202-N500K-T4-E2H-21	500	880	968	E2H	698 x 2043 x 513
FC202-N560K-T4-E2H-21	560	990	1089	E2H	698 x 2043 x 513
FC202-P630K-T4-F3-21	630	1120	1232	F3	2000 x 2204 x 606
FC202-P710K-T4-F3-21	710	1260	1386	F3	2000 x 2204 x 606
FC202-P800K-T4-F4-21	800	1460	1606	F4	2400 x 2204 x 606
FC202-P1M0-T4-F4-21	1000	1720	1892	F4	2400 x 2204 x 606

VLT AQUA DRIVE

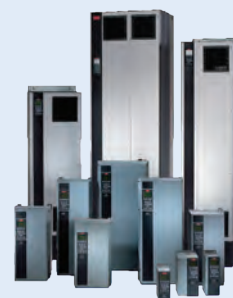
The VLT Aqua Drives are dedicated water and wastewater application drives with a wide range of powerful standard and optional features.

Features

- Cascade control
- Dry run detection
- Overload protection
- Minimum speed monitor
- Real time clock
- Alerts & warning programming

Proven Solution

VLT Aqua Drives are built on a flexible, modular design concept to provide a versatile motor control solution. It has an energy efficient design, intelligent heat management, automatic adaptation to application, energy efficient harmonic mitigation and optimal control of all motors.



Aqua series FC202 - Three Phase Input (**525-690VAC** +/- 10%), Three Phase Output (0-100% of Supply)

Code - IP20/21	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)	Frame Size	Dimensions (mm) W x H x D
FC202-P1K1-T7-A3-20	1,1	2,1	2,3	A3	130 x 268 x 205
FC202-P1K5-T7-A3-20	1,5	2,7	3	A3	130 x 268 x 205
FC202-P2K2-T7-A3-20	2,2	3,9	4,3	A3	130 x 268 x 205
FC202-P3K0-T7-A3-20	3	4,9	5,4	A3	130 x 268 x 205
FC202-P4K0-T7-A3-20	4	6,1	6,7	A3	130 x 268 x 205
FC202-P5K5-T7-A3-20	5,5	9	9,9	A3	130 x 268 x 205
FC202-P7K5-T7-A3-20	7,5	11	12,1	A3	130 x 268 x 205
FC202-P11K-T7-B2-21	11	14	15,4	B2	242 x 650 x 260
FC202-P15K-T7-B2-21	15	19	20,9	B2	242 x 650 x 260
FC202-P18K-T7-B2-21	18	23	25,3	B2	242 x 650 x 260
FC202-P22K-T7-B2-21	22	28	30,8	B2	242 x 650 x 260
FC202-P30K-T7-B2-21	30	36	39,6	B2	242 x 650 x 260
FC202-P37K-T7-C2-21	37	43	47,3	C2	370 x 770 x 335
FC202-P45K-T7-C2-21	45	54	59,4	C2	370 x 770 x 335
FC202-P55K-T7-C2-21	55	65	71,5	C2	370 x 770 x 335
FC202-P75K-T7-C2-21	75	90	99	C2	370 x 770 x 335
FC202-P90K-T7-C2-21	90	113	124	C2	370 x 770 x 335
FC202-N110K-T7-D1H-21	110	137	151	D1H	325 x 901 x 378.4
FC202-N132K-T7-D1H-21	132	162	178	D1H	325 x 901 x 378.4
FC202-N160K-T7-D1H-21	160	201	221	D1H	325 x 901 x 378.4
FC202-N200K-T7-D2H-21	200	253	278	D2H	420 x 1107 x 378.4
FC202-N250K-T7-D2H-21	250	303	333	D2H	420 x 1107 x 378.4
FC202-N315K-T7-D2H-21	315	360	396	D2H	420 x 1107 x 378.4
FC202-N400K-T7-D2H-21	400	418	460	D2H	420 x 1107 x 378.4
FC202-N450K-T7-E1H-21	450	470	517	E1H	602 x 2043 x 513
FC202-N500K-T7-E1H-21	500	523	575	E1H	602 x 2043 x 513
FC202-N560K-T7-E1H-21	560	596	656	E1H	602 x 2043 x 513
FC202-N630K-T7-E1H-21	630	630	693	E1H	602 x 2043 x 513
FC202-N710K-T7-E2H-21	710	763	839	E2H	698 x 2043 x 513
FC202-N800K-T7-E2H-21	800	889	978	E2H	698 x 2043 x 513
FC202-P900K-T7-F3-21	900	988	1087	F3	2000 x 2204 x 606
FC202-P1M0-T7-F4-21	1000	1108	1219	F4	2400 x 2204 x 606
FC202-P1M2-T7-F4-21	1200	1317	1449	F4	2400 x 2204 x 606
FC202-P1M4-T7-F4-21	1400	1479	1627	F4	2400 x 2204 x 606

NEW

VLT AQUA & HVAC ACCESSORIES



130B1100/130B1102


130B1119/130B1196
130B1196


130B1143

130B1164


130B1125
130B1143

134B6544



130B1108

130B1137



130B1124

130B1107



130B1113

Fieldbus Communication

Code	Description	Protocols	Connection type
130B1100	VLT® Profibus	FMS , DP , FMS , FDL	Screw terminal
130B1102	VLT® Devicenet	CIP, CAN	Screw terminal
130B1135	VLT® PROFINET	PROFINET , DCP , LLDP , HTTP , SMTP , TCP/IP	RJ-45
130B1119	VLT® EtherNet/IP	EtherNet/IP , CIP , HTTP , SMPT , DHCP	RJ-45
130B1196	VLT® Modbus TCP	EtherNet/IP , CIP , HTTP , SMPT , DHCP , TCP/IP	RJ-45

Relay and Analogue I/O Option

Code	Description	I/O
130B1110	VLT® Relay Option	3 x 3CO RELAYS 2A @ 240VAC, 1A @ 24VDC
130B1143	VLT® Analog I/O Option	3x Analog inputs: 0 ... 10V / Pt1000 / Ni1000 / 3x Analog outputs: 0 ... 10V

Application Options

Code	Description	I/O
130B1125	VLT® General Purpose I/O	3x Digital inputs Opto-decoupled 0 - 24 V. / 2x Analog inputs 0 - 10 V. / 2x Aigital outputs NPN / PNP switchable 24 V / 1x Analog output 0/4 - 20 Ma
130B1172	VLT® Sensor Input Card	2 or 3 wire PT100/PT1000
130B1137	VLT® PTC Thermistor Card	1x PTB-certified PTC thermistor input / 1x Switch-off signal for the Safe Stop function - 60mA @ 24VDC 1x PNP Transistor output - 10mA @ 24VDC
130B1164	VLT® Extended Relay Card MCB 113	4x SPDT Relays = 8A @ 250VAC OR 30VDC 7x Digital Inputs = 0.24VDC PNP/NPN 2x Analog Outputs = 4-20mA
130B1108	VLT® 24V DC Supply MCB 107	24V Input voltage Max Input current 2.2A Max cable Length 75M
134B6544	VLT® Real Time Clock	The drive uses it for synchronizing real-time data.

LCP Control Panel

Code	Description	I/O
130B1124	VLT® Control Panel LCP 101	Numerical Control unit
130B1107	VLT® Control Panel LCP 102	Graphic Control unit

LCP Panel Mounting Kit for IP20 Enclosure

Code	Description	Contains
130B1113	LCP mounting kit with Graphical Control	Kit Includes Fasteners, Gasket, 130B1107 , and 3M Cable
130B1114	LCP mounting kit with Numerical Control	Kit Includes Fasteners, Gasket, 130B1124 , and 3M Cable
130B1117	LCP mounting kit 1	Kit Includes Fasteners, Gaskets, 3M cable without LCP
130B1170	LCP mounting Kit 2	Kit Includes Fasteners, Gaskets, without LCP & without Cable

LCP Panel Mounting Kit for IP55 Enclosure

Code	Description	Contains
130B1129	LCP mounting Kit 3	Kit includes fasteners, gasket, blind cover, 8M "free end cable" without LCP

NEW

iC2-MICRO DRIVE



Features

- Easy retrofit - Designed to smoothly replace VLT® Micro Drive FC 51 in established plants
- Highly integrated design - iC2-Micro contains an integrated control panel, potentiometer, RFI filter, brake chopper, and intelligent cooling to reduce the need for external components.
- Operates at 50 °C ambient temperature at full load
- Save-space thanks to the compact design optimized for book style side-by-side mounting.
- Integrated PID controller.
- Coated PC boards as standard.



132G0234



132G0235


132G0237
132G0238


132G0236

iC2-Micro Drive - Single Phase Input 200-240VAC, Three Phase Output 230VAC

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 230V (kW)	Continuous Current (A)	Intermittent Current (A)		
132L6106	0.37	2.2	3.3	MA01c	70 x 150 x 143
132L6107	0.75	4.2	6.3	MA01c	70 x 150 x 143
132L6108	1.5	6.8	10.2	MA02c	75 x 176 x 157
132L6109	2.2	9.6	14.4	MA02a	75 x 186 x 175

iC2-Micro Drive - Three Phase Input 380-480VAC, Three phase Output 3 x 400VAC

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)		
132L6128	0.37	1.2	1.8	MA01a	70 x 150 x 158
132L6129	0.75	2.2	3.3	MA01a	70 x 150 x 158
132L6130	1.5	3.7	5.6	MA01a	70 x 150 x 158
132L6131	2.2	5.3	8	MA02a	75 x 186 x 175
132L6132	3	7.2	10.8	MA02a	75 x 186 x 175
132L6133	4	9	13.7	MA02a	75 x 186 x 175
132L6134	5.5	12	18	MA03A	90 x 238.5 x 200
132L6135	7.5	15.5	23.5	MA03A	90 x 238.5 x 200
132L6136	11	23	34.5	MA04A	125 x 292 x 245
132L6137	15	31	46.5	MA04A	125 x 292 x 245
132L6138	18.5	37	55.5	MA05A	165 x 335 x 248
132L6139	22	43	64.5	MA05A	165 x 335 x 248

Accessories

Code	Description
132G0234	External Control Panel 2" LCD
132G0235	Surface mounting kit for External control panel
132G0236	Flush mount kit for External control panel
132G0237	1.5m cable for External control panel
132G0238	3m cable for External control panel

Note: Brake resistors available on request.

NEW

VLT DECENTRALISED DRIVE



Technical Highlights

- Built-in smart logic controller
- Built-in DC coil to limit harmonic distortion
- Very easy to install and operate



130B5772



130B5778

FCD302 Decentral Drive IP66 - Three Phase Input 380-480VAC, Three phase Output 3 x 400VAC

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current (A)	Intermittent Current (A)		
FCD302-PK37-T4-66	0.37	1.2	1.9	S	200 x 331.5 x 175
FCD302-PK55-T4-66	0.55	1.6	2.6	S	200 x 331.5 x 175
FCD302-PK75-T4-66	0.75	2.2	3.5	S	200 x 331.5 x 175
FCD302-P1K1-T4-66	1.1	2.7	4.3	S	200 x 331.5 x 175
FCD302-P1K5-T4-66	1.5	3.7	5.9	S	200 x 331.5 x 175
FCD302-P2K2-T4-66	2.2	5.0	8.0	S	200 x 331.5 x 175
FCD302-P3K0-T4-66	3.0	6.5	10.4	L	201 x 431.5 x 186

Accessories

Code	Description
130B5771	Mounting brackets extended 40mm brackets
130B5772	Flat Mounting brackets
130B5778	Brake resistor 1750Ω 10W - Internal installations
130B5780	Brake resistor 350Ω 10W - Internal installations

One box concept minimizes design and installation cost

Unlike some decentral drives solutions, VLT® Decentral Drive **FCD 302** is a true 'One box' solutions based on the same reliable platform as the original VLT Automation Drive

Design and installation cost can be dramatically reduced. No need for field distribution or drop-down boxes and no external 24VDC supply is required.

For the OEM it's a breeze - fewer boxes to be mounted in fewer positions and fewer connections and terminations so that labour costs are significantly reduced.

This latest generation VLT® Decentral Drive **FCD 302** has been designed with simplicity and robustness in mind and offers significant advantages for multi-motor installations by mounting the drives close to the motors.

VACON® 20 COMPACT DRIVES



MI1 Frame



MI2 Frame



MI3 Frame



MI4 Frame



MI5 Frame

Features

- Push Button HMI
- EMC 4 (also suitable for IT networks)
- English quick guide
- 50Hz parameter settings

Typical applications

- Pumps and fans
- Conveyors
- Packaging, processing and washing machines

Technical highlights

- Wide power range up to 18.5 kW
- High performance and functionality
- Full I/O + option board support
- Fast installation and setup
- Built-in choke as option in ≥16A types
- Induction and permanent magnet (PM) motor support

Key benefits

- Fieldbus connectivity
- Parameter copying without main power
- Custom-made software possible

VACON 20 - Single Phase Input **208-240V**, Three Phase Output **3 x 230V IP20**

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 230V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0020-1L-0001-2	0,25	1,7	2,6	MI1	66 x 160 x 98
VACON0020-1L-0002-2	0,37	2,4	3,6	MI1	66 x 160 x 98
VACON0020-1L-0003-2	0,55	2,8	4,2	MI1	66 x 160 x 98
VACON0020-1L-0004-2	0,75	3,7	5,6	MI2	90 x 195 x 102
VACON0020-1L-0005-2	1,1	4,8	7,2	MI2	90 x 195 x 102
VACON0020-1L-0007-2	1,5	7	10,5	MI2	90 x 195 x 102
VACON0020-1L-0009-2	2,2	9,6	14,4	MI3	100 x 255 x 109

VACON 20 - Three Phase Input **380-480V**, Three Phase Output **3 x 400V IP20/IP21**

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		

IP20/Open Type

VACON0020-3L-0001-4	0,37	1,3	2	MI1	66 x 160 x 98
VACON0020-3L-0002-4	0,55	1,9	2,9	MI1	66 x 160 x 98
VACON0020-3L-0003-4	0,75	2,4	3,6	MI1	66 x 160 x 98
VACON0020-3L-0004-4	1,1	3,3	5	MI2	90 x 195 x 102
VACON0020-3L-0005-4	1,5	4,3	6,5	MI2	90 x 195 x 102
VACON0020-3L-0006-4	2,2	5,6	8,4	MI2	90 x 195 x 102
VACON0020-3L-0008-4	3	7,6	11,4	MI3	100 x 255 x 109
VACON0020-3L-0009-4	4	9	13,5	MI3	100 x 255 x 109
VACON0020-3L-0012-4	5,5	12	18	MI3	100 x 255 x 109

IP21/Open Type

VACON0020-3L-0016-4	7,5	16	24	MI4	165 x 370 x 165
VACON0020-3L-0023-4	11	23	34,5	MI4	165 x 370 x 165
VACON0020-3L-0031-4	15	31	46,5	MI5	165 x 414 x 202
VACON0020-3L-0038-4	18,5	38	57	MI5	165 x 414 x 202

VACON 20 - Three Phase Input **525-575V**, Three Phase Output **3 x 525V IP20**

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 575V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0020-3L-0002-7	0,75	1,7	2,6	MI3	100 x 255 x 109
VACON0020-3L-0003-7	1,5	2,7	4,1	MI3	100 x 255 x 109
VACON0020-3L-0004-7	2,2	3,9	5,9	MI3	100 x 255 x 109
VACON0020-3L-0006-7	4	6,1	9,2	MI3	100 x 255 x 109
VACON0020-3L-0009-7	5,5	9	13,5	MI3	100 x 255 x 109

VACON® COMPACT OPTIONS

Keypad Door Mounting

Code	Description	Suitability
PAN-HMDR-TMX-MC03-2M	VACON 20 door mounting kit with text keypad & passive adapter with 2m RJ45 cable	VACON 20
PAN-HMDR-TMX-MC03-3M	VACON 20 door mounting kit with text keypad & passive adapter with 3m RJ45 cable	VACON 20
PAN-HMDR-TMX-MC03-6M	VACON 20 door mounting kit with text keypad & passive adapter with 6m RJ45 cable	VACON 20
VACON-PAN-HMDR-MC03-2M	Complete IP54 keypad door kit+2m cable+adapater	VACON 20/20CP
VACON-PAN-HMTX-MC06-X	Handheld/Magnetic fixing IP66 text keypad w/ cable, l=0,5m	VACON 20X
VACON-PAN-HMTX-MC06-CP	Handheld/Magnetic fixing IP66 text keypad w/ cable, l=0,5m	VACON 20CP
PAN-HMWM-MK02	Keypad Wall mounting Kit	VACON 20/20X/20CP



ENC-SLOT VACON-ADP-MCAA

Option Board Mounting

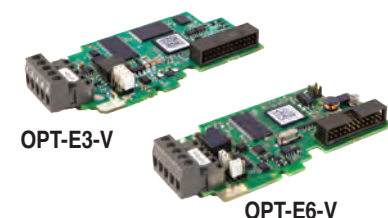
Code	Description	Suitability
ENC-SLOT-MC03-13	Option board mounting kit, drive width +28 mm	VACON 20 MI1-3
ENC-SLOT-MC03-45	Option board mounting kit	VACON 20 MI4-5

Communication Adapters

Code	Description	Suitability
CAB-USB/RS485	USB to RS-485 cable for PC	VACON 20/20X/20CP
VACON-ADP-MCAA	MCA adapter for PC tool and parameter cloning	VACON 20
VACON-ADP-MCAA-KIT	Kit with PC cable and MCA adapter	VACON 20

I/O boards D- and E-slot Compatible

Code	Description	Suitability
OPT-B1-V	6 x DI / DO, programmable	VACON 20/20X/20CP
OPT-B2-V	2 x RO + Thermistor	VACON 20/20X/20CP
OPT-B4-V	1 x AI, 2 x AO (isolated)	VACON 20/20X/20CP
OPT-B5-V	3 x RO	VACON 20/20X/20CP
OPT-B9-V	1 x RO, 5 x DI (42-240VAC)	VACON 20/20X/20CP
OPT-BF-V	1 x AO, 1 x DO, 1 x RO	VACON 20/20X/20CP
OPT-BH-V	3 x Temp sensor inputs (PT100, PT1000, KTY84-130, KTY84-150, KTY84-131, NI1000)	VACON 20/20X/20CP



OPT-E3-V

OPT-E6-V

* With ENC-SLOT-MC03-13/45

Field Bus Boards

Code	Description	Suitability
OPT-E3-V	Profibus DP, Screw Terminals	VACON 20*/20X/20CP
OPT-E5-V	Profibus DP, Sub-D9 Connector	VACON 20*/20X/20CP
OPT-E6-V	CANopen	VACON 20*/20X/20CP
OPT-E7-V	DeviceNet	VACON 20*/20X/20CP
OPT-E9-V	2-Port Ethernet (Modbus TCP/UDP, PROFINET, EtherNet/IP, RSTP, MRP)	VACON 20*/20X/20CP
OPT-EC-V	EtherCAT field bus	VACON 20*/20X/20CP
OPT-CJ-V	BACnet MS/TP	VACON 20*/20X/20CP

VACON 20 External Brake Resistors

Code	Dimensions W x H x D mm	Power [kW] @ 100% ED based on a 120s cycle	Resistance (Ω)	Suitability
208-240V				
BRR-0025-LD-2	60 x 31 x 165	0,1	30	VACON20 MI4 3~230V
BRR-0031-LD-2	60 x 31 x 246	0,16	20	VACON20 MI5 3~230V
BRR-0025-HD-2	60 x 106 x 381	0,27	30	VACON20 MI4 3~230V
BRR-0031-HD-2	124 x 122 x 400	0,41	20	VACON20 MI5 3~230V
380-500V				
BRR-0022-LD-5	60 x 31 x 335	0,24	63	VACON20 MI3 3~400V
BRR-0031-LD-5	117 x 124 x 225	0,35	42	VACON20 MI4 3~400V
BRR-0045-LD-5	117 x 124 x 426	0,71	21	VACON20 MI5 3~400V
BRR-0022-HD-5	124 x 126 x 540	0,61	63	VACON20 MI3 3~400V
BRR-0031-HD-5	124 x 126 x 700	0,91	42	VACON20 MI4 3~400V
BRR-0045-HD-5	260 x 101 x 700	1,8	21	VACON20 MI5 3~400V
525-690V				
BRR-0013-LD-6	60 x 31 x 405	0,28	100	VACON 20 MI3 3~600V
BRR-0013-HD-6	124 x 126 x 600	0,73	100	VACON 20 MI3 3~600V

HD = Heavy Duty (3 sec Full Power + 7 sec Ramp to Zero)

LD = Light Duty (5 sec Ramp to Zero)

VACON® 100 FLOW

Application Specific Features

- Integrated DC chokes

Pumps:

- 2 PID controllers with sleep mode, soft fill, jockey pump, pump autoclean
- PM and induction motor support

Fans:

- Flying start, motor switch
- 3 prohibit frequency ranges

Benefits

- Demand-based optimization of the process for accurate process control and energy saving

Common Features

- Built-in Modbus TCP/IP and Modbus RTU
- Ethernet always included
- Film capacitors
- Conformal coating on PCB's
- Standard I/O + 3 free slots

• **Extended lifespan: last up to 300,000 hours**



VACON 100 FLOW - Three Phase Input **380-500V**, Three Phase Output **3 x 400V**

IP21/Type 1, Air-cooled, Wall-mounted drive, EMC Class C2, Graphical keypad

Code	Low Overload Ratings				Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Motor Power 480V (Hp)	Continuous Current I _L (A)	110% Overload Current (A)		
VACON0100-3L-0003-5-FLOW	1,1	1,5	3,4	3,7	MR4	128 x 328 x 190
VACON0100-3L-0004-5-FLOW	1,5	2	4,8	5,3	MR4	128 x 328 x 190
VACON0100-3L-0005-5-FLOW	2,2	3	5,6	6,2	MR4	128 x 328 x 190
VACON0100-3L-0008-5-FLOW	3	4	8	8,8	MR4	128 x 328 x 190
VACON0100-3L-0009-5-FLOW	4	5	9,6	10,6	MR4	128 x 328 x 190
VACON0100-3L-0012-5-FLOW	5,5	7,5	12	13,2	MR4	128 x 328 x 190
VACON0100-3L-0016-5-FLOW	7,5	10	16	17,6	MR5	144 x 419 x 214
VACON0100-3L-0023-5-FLOW	11	15	23	25,3	MR5	144 x 419 x 214
VACON0100-3L-0031-5-FLOW	15	20	31	34,1	MR5	144 x 419 x 214
VACON0100-3L-0038-5-FLOW	18,5	25	38	41,8	MR6	195 x 557 x 229
VACON0100-3L-0046-5-FLOW	22	30	46	50,6	MR6	195 x 557 x 229
VACON0100-3L-0061-5-FLOW	30	40	61	67,1	MR6	195 x 557 x 229
VACON0100-3L-0072-5-FLOW	37	50	72	79,2	MR7	237 x 660 x 259
VACON0100-3L-0087-5-FLOW	45	60	87	95,7	MR7	237 x 660 x 259
VACON0100-3L-0105-5-FLOW	55	75	105	115,5	MR7	237 x 660 x 259
VACON0100-3L-0140-5-FLOW	75	100	140	154	MR8	290 x 966 x 343
VACON0100-3L-0170-5-FLOW	90	125	170	187	MR8	290 x 966 x 343
VACON0100-3L-0205-5-FLOW	110	150	205	225,5	MR8	290 x 966 x 343
VACON0100-3L-0261-5-FLOW	132	200	261	287,1	MR9	480 x 1150 x 365
VACON0100-3L-0310-5-FLOW	160	250	310	341	MR9	480 x 1150 x 365

VACON 100 FLOW - Three Phase Input **525-600V**, Three Phase Output **3 x 525V**

IP21/Type 1, Air-cooled, Wall-mounted drive, EMC Class C2, Graphical keypad

Code	Low Overload Ratings				Frame Size	Dimensions (mm) W x H x D
	Motor Power 525V (kW)	Motor Power 600V (Hp)	Continuous Current I _L (A)	110% Overload Current (A)		
VACON0100-3L-0004-6-FLOW	2,2	3	3,9	4,3	MR5	144 x 419 x 214
VACON0100-3L-0006-6-FLOW	4	5	6,1	6,7	MR5	144 x 419 x 214
VACON0100-3L-0009-6-FLOW	5,5	7,5	9	9,9	MR5	144 x 419 x 214
VACON0100-3L-0011-6-FLOW	7,5	10	11	12,1	MR5	144 x 419 x 214
VACON0100-3L-0018-6-FLOW	11	15	18	19,8	MR6	195 x 557 x 229
VACON0100-3L-0022-6-FLOW	15	20	22	24,2	MR6	195 x 557 x 229
VACON0100-3L-0027-6-FLOW	18,5	25	27	29,7	MR6	195 x 557 x 229
VACON0100-3L-0034-6-FLOW	22	30	34	37,4	MR6	195 x 557 x 229
VACON0100-3L-0041-6-FLOW	30	40	41	45,1	MR7	237 x 660 x 259
VACON0100-3L-0052-6-FLOW	37	50	52	57,2	MR7	237 x 660 x 259
VACON0100-3L-0062-6-FLOW	45	60	62	68,2	MR7	237 x 660 x 259
VACON0100-3L-0080-6-FLOW	55	75	80	88	MR8	290 x 966 x 343
VACON0100-3L-0100-6-FLOW	75	100	100	110	MR8	290 x 966 x 343
VACON0100-3L-0125-6-FLOW	90	125	125	137,5	MR8	290 x 966 x 343
VACON0100-3L-0144-6-FLOW	110	150	144	158,4	MR9	482 x 1150 x 365
VACON0100-3L-0208-6-FLOW	160	200	208	228,8	MR9	482 x 1150 x 365

VACON® 100 INDUSTRIAL

Application Specific Features

- Wide power range using only four frames
- Integrated DC chokes
- Options module for easy integration (frames MR10 and MR12)
- Safe Torque Off, Safe Stop1, ATEX-certified thermistor input
- Integrated brake chopper (optional, see page 154)
- Integrated output filters (optional)

Benefits

- Reduced installation space and costs
- Easier integration

Common Features

- Standard I/O + 3 free slots
- Built-in PLC capability
- High efficiency > 97% + energy optimization
- Built-in Modbus TCP/IP and Modbus RTU
- Ethernet always included
- **Extended lifespan: last up to 300,000 hours**



VACON 100 INDUSTRIAL - Three Phase Input **380-500V**, Three Phase Output **3 x 400V**

IP21/Type 1, Air-cooled, Wall-mounted drive, EMC Class C2, Graphical keypad

Code	Low Overload Ratings			High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current I _L (A)	110% Overload Current (A)	Motor Power 400V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0100-3L-0003-5	1,1	3,4	3,7	0,75	2,6	3,9	MR4	128 x 328 x 190
VACON0100-3L-0004-5	1,5	4,8	5,3	1,1	3,4	5,1	MR4	128 x 328 x 190
VACON0100-3L-0005-5	2,2	5,6	6,2	1,5	4,3	6,5	MR4	128 x 328 x 190
VACON0100-3L-0008-5	3	8	8,8	2,2	5,6	8,4	MR4	128 x 328 x 190
VACON0100-3L-0009-5	4	9,6	10,6	3	8	12	MR4	128 x 328 x 190
VACON0100-3L-0012-5	5,5	12	13,2	4	9,6	14,4	MR4	128 x 328 x 190
VACON0100-3L-0016-5	7,5	16	17,6	5,5	12	18	MR5	144 x 419 x 214
VACON0100-3L-0023-5	11	23	25,3	7,5	16	24	MR5	144 x 419 x 214
VACON0100-3L-0031-5	15	31	34,1	11	23	34,5	MR5	144 x 419 x 214
VACON0100-3L-0038-5	18,5	38	41,8	15	31	46,5	MR6	195 x 557 x 229
VACON0100-3L-0046-5	22	46	50,6	18,5	38	57	MR6	195 x 557 x 229
VACON0100-3L-0061-5	30	61	67,1	22	46	69	MR6	195 x 557 x 229
VACON0100-3L-0072-5	37	72	79,2	30	61	91,5	MR7	237 x 660 x 259
VACON0100-3L-0087-5	45	87	95,7	37	72	108	MR7	237 x 660 x 259
VACON0100-3L-0105-5	55	105	115,5	45	87	130,5	MR7	237 x 660 x 259
VACON0100-3L-0140-5	75	140	154	55	105	157,5	MR8	290 x 966 x 343
VACON0100-3L-0170-5	90	170	187	75	140	210	MR8	290 x 966 x 343
VACON0100-3L-0205-5	110	205	225,5	90	170	255	MR8	290 x 966 x 343
VACON0100-3L-0261-5	132	261	287,1	110	205	307,5	MR9	480 x 1150 x 365
VACON0100-3L-0310-5	160	310	341	132	251	376,5	MR9	480 x 1150 x 365

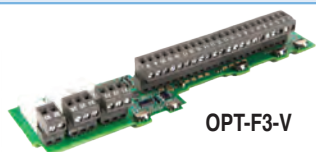
VACON 100 INDUSTRIAL - Three Phase Input **525-600V**, Three Phase Output **3 x 525V**

IP21/Type 1, Air-cooled, Wall-mounted drive, EMC Class C2, Graphical keypad

Code	Low Overload Ratings		High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Continuous Current I _L (A)	110% Overload Current (A)	Motor Power 525V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0100-3L-0004-6	3,9	4,3	1,5	2,7	4,1	MR5	144 x 419 x 214
VACON0100-3L-0006-6	6,1	6,7	2,2	3,9	5,9	MR5	144 x 419 x 214
VACON0100-3L-0009-6	9	9,9	4	6,1	9,2	MR5	144 x 419 x 214
VACON0100-3L-0011-6	11	12,1	5,5	9	13,5	MR5	144 x 419 x 214
VACON0100-3L-0018-6	18	19,8	7,5	13,5	20,3	MR6	195 x 557 x 229
VACON0100-3L-0022-6	22	24,2	11	18	27	MR6	195 x 557 x 229
VACON0100-3L-0027-6	27	29,7	15	22	33	MR6	195 x 557 x 229
VACON0100-3L-0034-6	34	37,4	18,5	27	40,5	MR6	195 x 557 x 229
VACON0100-3L-0041-6	41	45,1	22	34	51	MR7	237 x 660 x 259
VACON0100-3L-0052-6	52	57,2	30	41	61,5	MR7	237 x 660 x 259
VACON0100-3L-0062-6	62	68,2	37	52	78	MR7	237 x 660 x 259
VACON0100-3L-0080-6	80	88	45	62	93	MR8	290 x 966 x 343
VACON0100-3L-0100-6	100	110	55	80	120	MR8	290 x 966 x 343
VACON0100-3L-0125-6	125	137,5	75	100	150	MR8	290 x 966 x 343
VACON0100-3L-0144-6	144	158,4	90	125	187,5	MR9	482 x 1150 x 365
VACON0100-3L-0208-6	208	228,8	132	170	255	MR9	482 x 1150 x 365

VACON 100® ACCESSORIES

Code	Description	Suitability
Keypads		
VACON-PAN-HMDR-MK01-3M	VACON 100 door mounting kit with 3m cable	VACON 100 INDUSTRIAL / FLOW
VACON-PAN-HMDR-MK01-6M	VACON 100 door mounting kit with 6m cable	VACON 100 INDUSTRIAL / FLOW
VACON-PAN-HMGR-MK01	VACON 100 Keypad	VACON 100 INDUSTRIAL / FLOW
VACON-PAN-HMGR-MC05-X	Handheld/Magnetic fixing IP66 graphical keypad w/ cable, l=0,5m	VACON 100 X
CAB-HMI2M-MC05-X	MC05 IP66 HMI cable l=2m for -X keypads Option	VACON 100 X
CAB-HMI5M-MC05-X	MC05 IP66 HMI cable l=5m for -X keypads Option	VACON 100 X
PAN-HMWM-MK02	Keypad Wall-mounting Kit	VACON 100 X



OPT-F3-V



OPT-B1-V



OPT-B5-V



OPT-C4-V



OPT-E6-V



OPT-BJ-V



OPT-BT



BRR-0031-HD-5



BRR-0045-LD-5



BRR-0105-HD-5



BRR-0300-LD-5

I/O boards B -slot compatible

OPT-F3-V	3 x RO	VACON 100 INDUSTRIAL / FLOW
OPT-F4-V	2 x RO + Thermistor	VACON 100 INDUSTRIAL / FLOW

I/O boards D- and E -slot compatible VACON 100 and VACON 100 FLOW also C-slot

OPT-B1-V	6 x DI / DO, programmable	VACON 100 INDUSTRIAL / FLOW / X
OPT-B2-V	2 x RO + Thermistor	VACON 100 INDUSTRIAL / FLOW / X
OPT-B4-V	1 x AI, 2 x AO (isolated)	VACON 100 INDUSTRIAL / FLOW / X
OPT-B5-V	3 x RO	VACON 100 INDUSTRIAL / FLOW / X
OPT-B9-V	1 x RO, 5 x DI (42-240VAC)	VACON 100 INDUSTRIAL / FLOW / X
OPT-BF-V	1 x AO, 1 x DO, 1 x RO	VACON 100 INDUSTRIAL / FLOW / X
OPT-BH-V	3 x Temp sensor inputs (PT100, PT1000, KTY84-130, KTY84-150, KTY84-131, NI1000)	VACON 100 INDUSTRIAL / FLOW / X

Fieldbus boards D- and E -slot compatible

OPT-C4-V	LonWorks	VACON 100 INDUSTRIAL / FLOW / X
OPT-E3-V	Profibus DPV1	VACON 100 INDUSTRIAL / FLOW / X
OPT-E5-V	Profibus DPV1 (D9)	VACON 100 INDUSTRIAL / FLOW / X
OPT-E6-V	CANopen	VACON 100 INDUSTRIAL / FLOW / X
OPT-E7-V	DeviceNet	VACON 100 INDUSTRIAL / FLOW / X
OPT-E9-V	2-Port Ethernet (Modbus TCP/UDP, PROFINET, EtherNet/IP, RSTP, MRP)	VACON 100 INDUSTRIAL / FLOW / X

Safe Torque Off / ATEX (only E -slot)

OPT-BJ-V	Safe Torque Off/ATEX (slot E)	VACON 100 INDUSTRIAL / FLOW
----------	-------------------------------	-----------------------------

Others

CAB-USB/RS485	PC cable for SW tools, USB to RS-485, cable: 3m	VACON 100 INDUSTRIAL / FLOW / X
OPT-BT-MC04-1	Battery package for real time clock	VACON 100 INDUSTRIAL / FLOW
OPT-BT-MC02-1	Battery package for real time clock	VACON 100 X

Brake Resistors

Code 380-500V	Dimensions W x H x D mm	Power [kW] at 100% ED based on a 120s cycle	Resistance [Ω]	Weight kg	Suitability
BRR-0022-LD-5	60 x 31 x 335	0.24	63	1.2	VACON 100 INDUSTRIAL MR4
BRR-0031-LD-5	117 x 124 x 225	0.35	42	1.8	VACON 100 INDUSTRIAL MR5
BRR-0045-LD-5	117 x 124 x 426	0.71	21	3.3	VACON 100 INDUSTRIAL MR6
BRR-0061-LD-5	117 x 124 x 526	1.1	21	4	VACON 100 INDUSTRIAL MR7
BRR-0105-LD-5	260 x 101 x 860	2.3	6.5	12.8	VACON 100 INDUSTRIAL MR8
BRR-0300-LD-5	260 x 263 x 960	4.6	3.25	29	VACON 100 INDUSTRIAL MR9
BRR-0022-HD-5	124 x 126 x 540	0.61	63	3.5	VACON 100 INDUSTRIAL MR4
BRR-0031-HD-5	124 x 126 x 700	0.91	42	4.6	VACON 100 INDUSTRIAL MR5
BRR-0045-HD-5	260 x 101 x 700	1.8	21	11.3	VACON 100 INDUSTRIAL MR6
BRR-0061-HD-5	260 x 101 x 860	2.7	14	12.8	VACON 100 INDUSTRIAL MR7
BRR-0105-HD-5	480 x 300 x 530	5.9	6.5	25	VACON 100 INDUSTRIAL MR8
BRR-0300-HD-5	480 x 300 x 740	11.8	3.25	79	VACON 100 INDUSTRIAL MR9

HD = Heavy Duty (3 sec Full Power + 7 sec Ramp to Zero)

LD = Light Duty (5 sec Ramp to Zero)

VACON® 20 X - DECENTRALIZED DRIVE IP66



VACON 20 X - Three Phase Input **380-480V**, Three Phase Output **3 x 400V IP66/Type 4X**
(DC input up to 800VDC-MU3 Frame only)

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0020-3L-0003-4-X	0,75	2,4	3,6	MU2	169 x 295 x 154
VACON0020-3L-0004-4-X	1,1	3,3	5	MU2	170 x 295 x 154
VACON0020-3L-0005-4-X	1,5	4,3	6,5	MU2	171 x 295 x 154
VACON0020-3L-0006-4-X	2,2	5,6	8,4	MU2	172 x 295 x 154
VACON0020-3L-0008-4-X	3	7,6	11,4	MU2	173 x 295 x 154
VACON0020-3L-0009-4-X	4	9	13,5	MU3	205 x 375 x 180
VACON0020-3L-0012-4-X	5,5	12	18	MU3	206 x 375 x 180
VACON0020-3L-0016-4-X	7,5	16	24	MU3	207 x 375 x 180

See Page 6.8 for accessories. Keypads to be ordered separately.

Technical Highlights

- 2g resistance to vibrations (according to 3M6/IEC 60721-3-3)
- Large cooling ribs
- Option of integrated mains switch

Benefits

- Cost savings from decentral concept
- Can be used in almost any environment
- Can be cleaned with pressurized water
- Custom-made software solutions with built-in PLC functionality for OEMs

VACON® 100 X - DECENTRALIZED/SOLAR DRIVE IP66



VACON 100 X - Three Phase Input **380-480V**, Three Phase Output **3 x 400V IP66/Type 4X**, DC input up to 800VDC

Code	High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
VACON0100-3L-0016-4-X	7,5	16	24	MM5	233 x 367 x 214
VACON0100-3L-0023-4-X	11	23	34	MM5	233 x 367 x 214
VACON0100-3L-0031-4-X	15	31	46	MM5	233 x 367 x 214
VACON0100-3L-0038-4-X	18,5	38	57	MM6	350 x 500 x 235
VACON0100-3L-0046-4-X	22	46	69	MM6	350 x 500 x 235
VACON0100-3L-0061-4-X	30	61	91	MM6	350 x 500 x 235
VACON0100-3L-0072-4-X	37	72	80*	MM6	350 x 500 x 235

See Page 6.11 for accessories. Keypads to be ordered separately.

* 110% Overload

Technical Highlights

- 3g resistance to vibrations (according to 3M7/IEC 60721-3-3)
- Option of integrated mains switch
- Integrated with RS485 Modbus and EtherNET communication
- Integrated Brake Chopper

Benefits

- Able to withstand rough conditions such as heat, dirt and vibrations
- Programming enables top class integration for countless OEM applications
- Mountable in any position

ENCLOSED VSD'S



Pressure Drive Panel - IP54

Variable Speed Drive in a "Box". Panel includes: VSD, Surge Protection, Isolator, Pressure Selection Switch and Pressure Transducer. Standard Pressure Settings: 4 / 6 / 8 / 10 Bar & Bypass (No Pressure Control). Other configurations available on request.

Code	Motor Power	Motor Voltage	Motor Current	Drive Included
PD-04*	4kW	400V	9.6A	VACON 100 FLOW
PD-05*	5,5kW	400V	12A	VACON 100 FLOW
PD-07*	7,5kW	400V	16A	VACON 100 FLOW
PD-11*	11kW	400V	23A	VACON 100 FLOW
PD-15*	15kW	400V	31A	VACON 100 FLOW
PD-18*	18,5kW	400V	38A	VACON 100 FLOW
PD-22	22kW	400V	46A	VACON 100 FLOW
PD-30	30kW	400V	61A	VACON 100 FLOW
PD-37	37kW	400V	72A	VACON 100 FLOW

* - Add S to code for panel, c/w 10 Bar Pressure Sensor

VACON® NXP

Ideal for demanding applications. VACON® NXP range offers the ultimate in motor control, for both induction and permanent magnet (PM) motors, gearless drive applications and paralleling solutions for high power motors. VACON® NXP is the smart drive of choice. With fast fieldbus options and exceptional programming flexibility, your VACON® NXP is easily integrated into any plant's automation system. Satisfied customers also rely on our enclosed cabinet drive solution, VACON® NXC, to perform in the most challenging industrial environments such as oil and gas, extrusion, mining, pulp and paper, water and wastewater applications.



VACON NXP - Three Phase Input **380-500V**, Three Phase Output **3 x 400V IP21/Type 1**, Air-cooled, Wall-mounted, EMC Class H

Code	Low Overload Ratings			High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 400V (kW)	Continuous Current I _L (A)	110% Overload Current (A)	Motor Power 400V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
NXP00035A2H1SSVA1A200000	1,1	3,3	3,6	0,75	2,2	3,3	FR4	128 x 292 x 190
NXP00045A2H1SSVA1A200000	1,5	4,3	4,7	1,1	3,3	5	FR4	128 x 292 x 190
NXP00055A2H1SSVA1A200000	2,2	5,6	6,2	1,5	4,3	6,5	FR4	128 x 292 x 190
NXP00075A2H1SSVA1A200000	3	7,6	8,4	2,2	5,6	8,4	FR4	128 x 292 x 190
NXP00095A2H1SSVA1A200000	4	9	9,9	3	7,6	11,4	FR4	128 x 292 x 190
NXP00125A2H1SSVA1A200000	5,5	12	13,2	4	9	13,5	FR4	128 x 292 x 190
NXP00165A2H1SSVA1A200000	7,5	16	17,6	5,5	12	18	FR5	144 x 391 x 214
NXP00225A2H1SSVA1A200000	11	23	25,3	7,5	16	24	FR5	144 x 391 x 214
NXP00315A2H1SSVA1A200000	15	31	34	11	23	35	FR5	144 x 391 x 214
NXP00385A2H1SSVA1A200000	18,5	38	42	15	31	47	FR6	195 x 519 x 237
NXP00455A2H1SSVA1A200000	22	46	51	18,5	38	57	FR6	195 x 519 x 237
NXP00615A2H1SSVA1A200000	30	61	67	22	46	69	FR6	195 x 519 x 237
NXP00725A2H0SSVA1A200000	37	72	79	30	61	92	FR7	237 x 591 x 257
NXP00875A2H0SSVA1A200000	45	87	96	37	72	108	FR7	237 x 591 x 257
NXP01055A2H0SSVA1A200000	55	105	116	45	87	131	FR7	237 x 591 x 257
NXP01405A2H0SSVA1A200000	75	140	154	55	105	158	FR8	291 x 758 x 344
NXP01685A2H0SSVA1A200000	90	170	187	75	140	210	FR8	291 x 758 x 344
NXP02055A2H0SSVA1A200000	110	205	226	90	170	255	FR8	291 x 758 x 344
NXP02615A2H0SSGA1A200000	132	261	287	110	205	308	FR9	480 x 1150 x 362
NXP03005A2H0SSGA1A200000	160	300	330	132	245	368	FR9	480 x 1150 x 362

VACON NXP - Three Phase Input **525-690V**, Three Phase Output **3 x 525V IP21/Type 1**, Air-cooled, Wall-mounted, EMC Class L

Code	Low Overload Ratings			High Overload Ratings			Frame Size	Dimensions (mm) W x H x D
	Motor Power 690V (kW)	Continuous Current I _L (A)	110% Overload Current (A)	Motor Power 690V (kW)	Continuous Current I _H (A)	150% Overload Current (A)		
NXP00046A2L0SSVA1A200000	3	4,5	5	2,2	3,2	4,8	FR6	195 x 519 x 237
NXP00056A2L0SSVA1A200000	4	5,5	6,1	3	4,5	6,8	FR6	195 x 519 x 237
NXP00076A2L0SSVA1A200000	5,5	7,5	8,3	4	5,5	8,3	FR6	195 x 519 x 237
NXP00106A2L0SSVA1A200000	7,5	10	11	5,5	7,5	11,3	FR6	195 x 519 x 237
NXP00136A2L0SSVA1A200000	11	13,5	14,9	7,5	10	15	FR6	195 x 519 x 237
NXP00186A2L0SSVA1A200000	15	18	19,8	11	13,5	20,3	FR6	195 x 519 x 237
NXP00226A2L0SSVA1A200000	18,5	22	24,2	15	18	27	FR6	195 x 519 x 237
NXP00276A2L0SSVA1A200000	22	27	29,7	18,5	22	33	FR6	195 x 519 x 237
NXP00346A2L0SSVA1A200000	30	34	37	22	27	41	FR6	195 x 519 x 237
NXP00416A2L0SSVA1A200000	37,5	41	45	30	34	51	FR7	237 x 591 x 257
NXP00526A2L0SSVA1A200000	45	52	57	37,5	41	62	FR7	237 x 591 x 257
NXP00626A2L0SSVA1A200000	55	62	68	45	52	78	FR8	291 x 758 x 344
NXP00806A2L0SSVA1A200000	75	80	88	55	62	93	FR8	291 x 758 x 344
NXP01006A2L0SSVA1A200000	90	100	110	75	80	120	FR8	291 x 758 x 344
NXP01256A2L0SSGA1A200000	110	125	138	90	100	150	FR9	480 x 1150 x 362
NXP01446A2L0SSGA1A200000	132	144	158	110	125	188	FR9	480 x 1150 x 362
NXP01706A2L0SSGA1A200000	160	170	187	132	144	216	FR9	480 x 1150 x 362
NXP02086A2L0SSGA1A200000	200	208	229	160	170	255	FR9	480 x 1150 x 362

VACON® NX OPTIONS

VACON NX OPTIONS - Display panels, Door installation sets, RS232 cables, Fiber optic cables

Code	Description	Suitability
PAN-A	Alphanumeric display panel	NXP
PAM-G	Graphical display panel	NXP

Door installation sets

DRA-02B	Door installation set for display panel, 2m cable	NXP
DRA-04B	Door installation set for display panel, 4m cable	NXP

RS232 cables

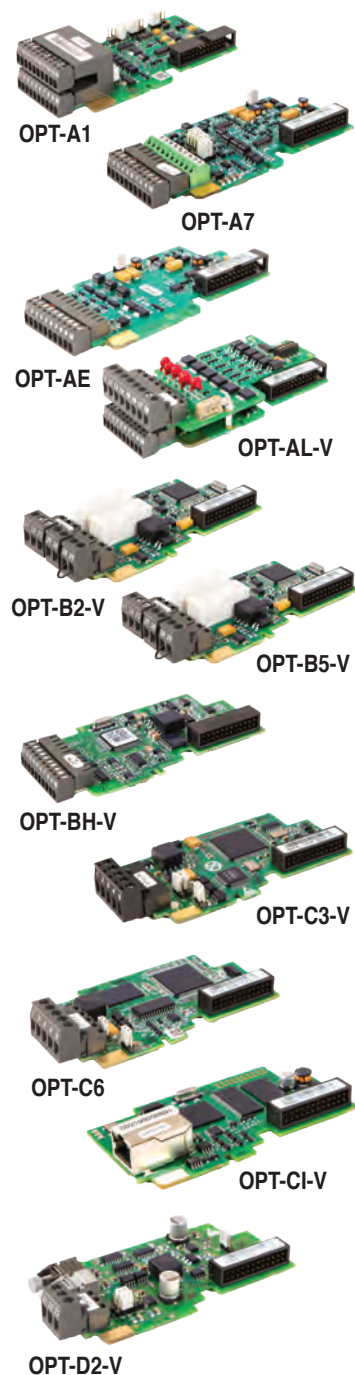
RS232C-02M	2m RS232 serial link cable, pin to pin	NXP
RS232C-04M	4m RS232 serial link cable, pin to pin	NXP
RS232-01M	1,5m RS232 PC cable	NXP

Fiber optic cables for system bus (OPT-D1, OPT-D2)

SYS-2M	Fiber optic cable (pair), 2m	NXP
SYS-4M	Fiber optic cable (pair), 4m	NXP
SYS-10M	Fiber optic cable (pair), 10m	NXP

VACON NX OPTIONS I/O cards

Code	Description	Suitability
OPT-A1	6DI, 1DO, 2AI(mA/V), 1AO(mA/V), +10 Vref, +24V/EXT+24V	NXP
OPT-A2	2RO(NO/NC)	NXP
OPT-A3-V	1RO(NO/NC), 1RO(NO), 1Thermistor Input	NXP
OPT-A4-V	3DI(Encoder RS422), 2DI (Qualifier+Fast Input), Out +5V/+15V/+24V	NXP
OPT-A5-V	3DI(Encoder 10...24V), 2DI (Qualifier+Fast Input), Out +15V/+24V	NXP
OPT-A7	Double encoder (Wide Range), 6DI, 2DO	NXP
OPT-A8	As OPT-A1 , but analog I/O and +10Vref galv. de-coupled as a group	NXP
OPT-A9	As OPT-A1 , but 2,5 mm ² terminals (Not with AF board)	NXP
OPT-AE	Encoder board (Wide Range), 3DI(Encoder 10...24 V), Out +15V/+24V, 2DO (encoder divider and direction)	NXP
OPT-AF-V	STO SIL2/PL"d" + ATEX appr. Thermistor, all boards need to be varnished	NXP
OPT-AK-V	SIN/COS encoder interface	NXP
OPT-AL-V	6DI (42...240VAC), 2AI, 2AO, 1DO, Out 15V / 24V	NXP
OPT-AN-V	6DI (Galv. de-coupled as a group), 2AI and 2AO (Programmable 0...20mA, 4...20mA, 0...10V, 2...10V, -10...+10V)	NXP
OPT-B1-V	6DI/DO (programmable, DI or DO)	NXP
OPT-B2-V	1RO(NO/NC), 1RO(NO), Thermistor Input	NXP
OPT-B4-V	1AI(mA, isolated), 2AO(mA, isolated), +24V/EXT+24V	NXP
OPT-B5-V	3RO(NO)	NXP
OPT-B8-V	3Pt100, +24 V/EXT+24 V	NXP
OPT-B9-V	1RO(NO), 5 pcs of 41...240 VAC input	NXP
OPT-BB	ENDAT encoder card, 2xDO (RS422)	NXP
OPT-BC	RESOLVER, 3x DO (Wide Range)	NXP
OPT-BE-V	SSI and Endat Encoders	NXP
OPT-BH-V	3 x Temp sensor inputs (PT100, PT1000, KTY84-130, KTY84-150, KTY84-131, NI1000)	NXP
OPT-BL-V	Advanced safety option, requires AF board	NXP
OPT-BM-V	Advanced safety option - Pulse encoder interface, requires AF board	NXP
OPT-BN-V	Advanced safety option - SIN/COS encoder interface, requires AF board	NXP
OPT-C2	Modbus RTU / N2	NXP
OPT-C3-V	Profibus DP	NXP
OPT-C4-V	LonWorks	NXP
OPT-C5-V	Profibus DP (D9 type connector)	NXP
OPT-C6	CANopen	NXP
OPT-C7-V	DeviceNet	NXP
OPT-C8	Modbus RTU / N2 (D9 type connector)	NXP
OPT-CI-V	Modbus TCP/IP	NXP
OPT-CJ-V	BACnet MS/TP	NXP
OPT-CG-V	S2 Protocol	NXP
OPT-CP-V	ProfiNet I/O	NXP
OPT-CQ-V	Ethernet/IP	NXP
OPT-D1	System Bus adapter (2x fiber optic cable)	NXP
OPT-D2-V	System Bus (1x fiber optic cable) & CAN-BUS (Galv. Decoupled)	NXP
OPT-D3	RS232 adapter card (not galvanically decoupled)	NXP
OPT-D6-V	CAN-Bus (Galv. Decoupled)	NXP
OPT-D7	Line voltage measurement board	NXP
OPT-E9-V	2-Port Ethernet option (Modbus TCP/UDP, PROFINET, EtherNet/IP, RSTP, MRP)	NXP
OPT-EC-V	EtherCAT field bus	NXP



FU9000 DRIVES



Mini Drive - FU9000MD Series

Code	Input Current	Output Current	Rated Output Power	Dimensions (mm) W x H x D
Single Phase Input 220-240V, Three Phase Output 3 x 230V				
FU9000MD-0R7G-S2	8.2A	4A	0.75kW	156 x 91x 132
FU9000MD-1R5G-S2	14A	7A	1.5kW	156 x 91x 132
FU9000MD-2R2G-S2	23A	10A	2.2kW	156 x 91x 132
Three Phase Input 380-480V, Three Phase Output 3 x 400V				
FU9000MD-0R7G-2	3.4A	2.1A	0.75kW	156 x 91x 132
FU9000MD-1R5G-2	5A	3.8A	1.5kW	156 x 91x 132
FU9000MD-2R2G-2	5.5A	5.1A	2.2kW	156 x 91x 132

- High performance vector control technology allows high torque output at low speeds, excellent dynamic characteristics and excellent overload capability.
- 115% smaller than general size VFD's facilitates easy installation in various applications
- Multiple digital and analogue inputs and outputs and built in Modbus communication allow easy integration in automated production equipment



General Purpose - FU9000D Series

Code	Input Current	Output Current	Rated Output Power	Dimensions (mm) W x H x D
Single Phase Input 220-240V, Three Phase Output 3 x 230V				
FU9000D-0R7G-S2	8.2A	4A	0.75kW	126 x 186 x 161
FU9000D-1R5G-S2	14A	7A	1.5kW	126 x 186 x 161
FU9000D-2R2G-S2	23A	9.6A	2.2kW	126 x 186 x 161
Three Phase Input 380-480V, Three Phase Output 3 x 400V				
FU9000D-0R7G-4	3.4A	2.1A	0.75kW	126 x 186 x 161
FU9000D-1R5G-4	5A	3.8A	1.5kW	126 x 186 x 161
FU9000D-2R2G-4	5.8A	5.1A	2.2kW	126 x 186 x 161
FU9000D-004G-4	10.5A	9A	3.7kW	126 x 186 x 161
FU9000D-5R5G-4	14.6A	13A	5.5kW	146 x 256 x 172
FU9000D-7R5G-4	20.5A	17A	7.5kW	146 x 256 x 172
FU9000D-011G-4	26A	25A	11kW	171 x 321 x 201
FU9000D-015G-4	35A	32A	15kW	171 x 321 x 201
FU9000D-018G-4	38.5A	37A	18.5kW	171 x 321 x 201

- Open Loop
- Modbus-RTU Communication
- Automatic torque boost
- Slip Compensation
- Simplified parameters for easy start-up
- 4 Independent start-up ramps
- Flexible programmable I/O connection
- Comprehensive trip diagnostics
- Output frequency up to 500 Hz
- Built-in braking unit up to 18.5kW

Dual Input AC/DC Solar Drive - FU9000SI Series

Code	Max. PV Voc	DC Input Voltage Range	Rated Output Power	Max. PV Isc	Rated Output Current	Dimensions (mm) W x H x D
Single Phase Input 220-240V, Three Phase Output 3 x 230V						
FU9000SI-0R7G-S2	400VDC	200~400VDC	0.75kW	9.3A	4.2A	126 x 186 x 161
FU9000SI-1R5G-S2	400VDC	200~400VDC	1.5kW	15.7A	7.5A	126 x 186 x 161
FU9000SI-2R2G-S2	400VDC	200~400VDC	2.2kW	24A	10A	126 x 186 x 161
Three Phase Input 380-480V, Three Phase Output 3 x 400V						
FU9000SI-0R7G-4	800VDC	300~750VDC	0.75kW	3.4A	2.5A	126 x 186 x 161
FU9000SI-1R5G-4	800VDC	300~750VDC	1.5kW	5A	4.5A	126 x 186 x 161
FU9000SI-2R2G-4	800VDC	300~750VDC	2.2kW	5.8A	5.5A	126 x 186 x 161
FU9000SI-004G-4	800VDC	300~750VDC	4kW	13.5A	9.5A	126 x 186 x 161
FU9000SI-5R5G-4	800VDC	300~750VDC	5.5kW	19.5A	14A	146 x 256 x 172
FU9000SI-7R5G-4	800VDC	300~750VDC	7.5kW	25A	18.5A	146 x 256 x 172
FU9000SI-011G-4	800VDC	300~750VDC	11kW	32A	25A	171 x 321 x 201
FU9000SI-015G-4	800VDC	300~750VDC	15kW	40A	32A	171 x 321 x 201
FU9000SI-018G-4	800VDC	300~750VDC	18.5kW	47A	38A	171 x 321 x 201



- Same Basic Functionality as FU9000D
- 99% Efficient MPPT
- Remote Monitoring using ACDC Smart App(with Optional GSM Communication Card)
- Allows Simultaneous AC and DC Input



CAT5-P1M-G



FU9000KH

Accessories

Code	Description
FU9000KH	Panel Mount Remote Keypad Holder
FU9000SI-GSM	GSM Communication Card for VSD FU9000SI
CAT5-P1M-G	Keypad Cable 1m
CAT5-P3M-G	Keypad Cable 3m

AUCOM CSXi SOFT STARTER SERIES

CSXi Series

Control Voltage: 220V

Input Voltage: 3 Phase 200-575V

- Compact Size
- Integrated Bypass Contactors
- Essential Motor Protection
- Simple to Use
- The **CSXi** soft starter is a Constant Current / Current Ramp system, complete with current measurement and control.
- In addition to soft start and soft stop, the **CSXi** provides range of motor protection functions, including motor overload, phase loss and excess start time.
- The **CSXi** also features a programmable relay.



Rated Current*		Code	Dimensions (mm) H x W x D
Light Duty	Heavy Duty		
18A	17A	CSXi-007-61	203 x 89 x 165
34A	30A	CSXi-015-61	203 x 89 x 165
48A	40A	CSXi-022-61	203 x 89 x 165
60A	49A	CSXi-030-61	203 x 89 x 165
75A	65A	CSXi-037-61	215 x 145 x 193
85A	73A	CSXi-045-61	215 x 145 x 193
100A	96A	CSXi-055-61	215 x 145 x 193
140A	120A	CSXi-075-61	240 x 202 x 214
170A	142A	CSXi-090-61	240 x 202 x 214
200A	165A	CSXi-110-61	240 x 202 x 214

NEW

VLT SOFT STARTERS



MCD100 DIN Rail Mounted Soft Starters IP20 - Three Phase Input

Code	Max Motor Power(kW)	Max Full Load Current(A)	Input Voltage	Frame Size	Dimensions (mm) W x H x D
175G4001	1,5	3	400-415VAC	S	23 x 102 x 124
175G4005	7,5	15	400-480VAC	M	45 x 110 x 128
175G4008	11	25	400-480VAC	L	90 x 110 x 128

* Maximum motor power is dependant on supply voltage

Technical Highlights

- 0-10s adjustable ramp up & down time
- Adjustable initial torque up to 85%
- Auto detection of missing phase
- 24-480VAC/VDC universal control voltage
- Digitally controlled rotary switches
- secures precise settings and simplifies installations
- A universal control voltage
- (24-480VAC/VDC)- simplifies selection and keeps stock at a minimum

- Ratings for heavy duty as standard
- simplifies installation and reduces the risk of breakdown
- Can be used for an almost unlimited number of starts per hour without derating

- A "fit and forget" contactor design
- simplifies installation and reduces required panel space
- A robust semiconductor design
- selection can be based on motor power which ensures easy selection

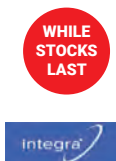
INTEGRA INTELLIGENT ENERGY EFFICIENT SOFT STARTERS

For Smooth Starting

Integra is one of the finest energy saving soft-starters in the world with a wide range of adjustable features that allow you to start even the most awkward load with ease.

For Energy Reduction

- Ensure that your motors only consume the energy that they require
- Significantly reduce your energy bills
- Reduce levels of unscheduled breakdowns
- Switch your motors off automatically when they are not needed
- Protect the motors from excess heat and vibration



Integra Soft Starters

Code 220-480V - 3ph	Code 525-575V - 3ph	Maximum Full Load Current	Motor kW	
			@380-480V	@525-575V
-	SI-15/V575	30A	15	22
SI-22/V220-480	SI-22/V575	42A	22	30
SI-30/V220-480/F220	SI-30/V575/F220	53A	30	37
SI-37/V220-480/F220	SI-37/V575/F220	65A	37	45
SI-55/V220-480/F220	SI-55/V575/F220	97A	55	75
SI-75/V220-480/F220	-	145A	75	110
SI-90/V220-480/F220	SI-90/V575/F220	170A	90	132
SI-110/V220-480/F220	SI-110/V575/F220	205A	110	150
SI-132/V220-480/F220	SI-132/V575/F220	255A	132	186
SI-150/V220-480/F220	SI-150/V575/F220	290A	150	220
SI-186/V220-480/F220	SI-186/V575/F220	340A	186	260
SI-225/V220-480/F220	SI-225/V575/F220	410A	225	315
SI-260/V220-480/F-UN	-	475A	260	375
SI-315/V220-480/F-UN	-	580A	315	450

AUCOM EMX4 SOFT STARTER SERIES

The **EMX4** simplifies the installation and operation of motor starting systems to reduce installation cost and time.

XLR-8 Acceleration Control

Torque or Current Control start modes influence acceleration but only XLR-8 puts you in direct control of ramp profiles and start times. Select a ramp profile and time then let the **EMX4** do the rest. XLR-8 technology auto-tunes for the connected motor and load conditions to deliver the specified performance.



Start Here



Select a starter and diagnose issues for AuCom soft starters from the palm of your hand with the AuCom Start Here app. Enter application details to get an instant model recommendation & supporting datasheet.



EMX4 Digital Soft Starter - Control Voltage: 110/230V

Code EMX4E (200-525VAC Input)	Code EMX4I (200-525VAC Input)	Code EMX4I (380-690VAC Input)	Standard Duty @ 40°C		Heavy Duty @ 40°C		Dimensions (mm) W x H x D
			kW @ 400V	FLC Amps	kW @ 400V	FLC Amps	
EMX4E-0024B-511	EMX4I-0024B-511	EMX4I-0024B-711	11	20	7.5	16	336 x 152 x 231
EMX4E-0042B-511	EMX4I-0042B-511	EMX4I-0042B-711	18.5	34	15	27	336 x 152 x 231
EMX4E-0052B-511	EMX4I-0052B-511	EMX4I-0052B-711	22	42	18.5	35	336 x 152 x 231
EMX4E-0064B-511	EMX4I-0064B-511	EMX4I-0064B-711	30	63	22	51	336 x 152 x 231
EMX4E-0069B-511	EMX4I-0069B-511	EMX4I-0069B-711	37	69	30	62	336 x 152 x 231
EMX4E-0105B-511	EMX4I-0105B-511	EMX4I-0105B-711	45	86	37	69	336 x 152 x 231
EMX4E-0115B-511	EMX4I-0115B-511	EMX4I-0115B-711	55	108	45	86	336 x 152 x 231
EMX4E-0135B-511	EMX4I-0135B-511	EMX4I-0135B-711	60	129	55	103	336 x 152 x 231
EMX4E-0184B-511	EMX4I-0184B-511	EMX4I-0184B-711	75	144	60	116	495 x 216 x 243
EMX4E-0200B-511	EMX4I-0200B-511	EMX4I-0200B-711	90	171	75	138	495 x 216 x 243
EMX4E-0229B-511	EMX4I-0229B-511	EMX4I-0229B-711	110	194	90	157	495 x 216 x 243
EMX4E-0250B-511	EMX4I-0250B-511	EMX4I-0250B-711	132	244	110	200	495 x 216 x 243
EMX4E-0352B-511	EMX4I-0352B-511	EMX4I-0352B-711	160	287	132	234	495 x 216 x 243
EMX4E-0397B-511	EMX4I-0397B-511	EMX4I-0397B-711	185	323	150	263	523 x 216 x 243
EMX4E-0410B-511	EMX4I-0410B-511	EMX4I-0410B-711	220	410	200	380	523 x 216 x 243
EMX4E-0550B-511	EMX4I-0550B-511	EMX4I-0550B-711	300	527	220	427	523 x 216 x 243
EMX4E-0580B-511	EMX4I-0580B-511	EMX4I-0580B-711	315	579	250	470	523 x 216 x 243
-	-	EMX4I-0835B-711	355	654	300	535	572 x 447 x 310
-	-	EMX4I-0940B-711	400	736	315	603	572 x 447 x 310
-	-	EMX4I-1070B-711	500	950	450	785	572 x 447 x 310
-	-	EMX4I-1230B-711	600	1154	500	959	572 x 447 x 310
-	-	EMX4I-1250B-711	700	1250	600	1156	572 x 447 x 310

NEW



EMX4 Digital Soft Starter - Control Voltage: 110/230V

Code EMX4I (<1200VAC Input)	Standard Duty @ 40°C		Heavy Duty @ 40°C		Dimensions (mm) W x H x D
	kW @ 1000V	FLC Amps	kW @ 1000V	FLC Amps	
EMX4I-0202E-1211	220	202	185	137	662 x 447 x 306
EMX4I-0287E-1211	315	287	250	197	662 x 447 x 306
EMX4I-0387E-1211	400	387	355	267	662 x 447 x 306
EMX4I-0564E-1211	600	564	500	366	662 x 447 x 306
EMX4I-0629E-1211	700	629	500	414	662 x 447 x 306
EMX4I-0857E-1211	900	857	700	559	662 x 447 x 306
EMX4I-1092E-1211	1200	1092	1000	716	662 x 447 x 306

EMX4 Accessories

Code	Description
PIC-RC-01	Remote Keypad Card
PIC-RC-02	Remote Keypad Card & Keypad with cable & mounting kit
PIC-RK-01	Remote Keypad, with cable & mounting kit
995-17309-00	Fingerguard Kit, 0184B ~ 0580B, IP20
SCC-PC-01	Smart Control Card Pump Application
PIC-MB-01	Modbus RTU Card
PIC-DN-01	DeviceNet Card
PIC-PB-01	Profibus Card
PIC-MT-03	Modbus TCP Card + Ground Fault (Core Balance CT) Input
PIC-EI-03	Ethernet IP Card + Ground Fault (Core Balance CT) Input
PIC-PN-03	Profinet Card + Ground Fault (Core Balance CT) Input



Application or Industry Specific smart cards allow the EMX4 to act as a system controller, simplifying system design, installation & setup.

230VAC ML1 SINGLE PHASE ALUMINIUM MOTORS IP55

Features

- Low Voltage TEFC aluminium frame industrial Motors
- Capacitor start and run design
- Rating from 0,25kW up to 2,2kW
- Class F insulation
- 2 and 4 pole motors
- B3, B35 mounting

- Altitude of operation max 1000m.a.s.l.
- Max ambient operating temperature 40°C
- Supply 230VAC 50Hz
- Duty cycle S1
- Standards SANS 1804-1/2, IEC 60034-1



B3 Foot Mount

B35 Foot & Flange Mount

Code 230VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)	Code 230VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)
2 Pole Motors													
ML1073-2AF	0,55	2	70	2800	14Ø	8	ML1073-2EF	0,55	2	70	3000	14Ø	8
ML1080-2AF	0,75	2	80	2800	19Ø	8,5	ML1080-2EF	0,75	2	80	2800	19Ø	5,9
ML1083-2AF	1,1	2	80	2800	19Ø	9,5	ML1083-2EF	1,1	2	80	3000	19Ø	9,5
ML1090-2AF	1,5	2	90S	2800	24Ø	12,5	ML1090-2EF	1,5	2	90S	3000	24Ø	12,5
ML1093-2AF	2,2	2	90L	2800	24Ø	14	ML1093-2EF	2,2	2	90L	3000	24Ø	14
4 Pole Motors													
ML1070-4AF	0,25	4	70	1400	14Ø	6,9	ML1070-4EF	0,25	4	70	1500	14Ø	6,9
ML1073-4AF	0,37	4	70	1400	14Ø	8,1	ML1073-4EF	0,37	4	70	1500	14Ø	8,1
ML1080-4AF	0,55	4	80	1440	19Ø	8,9	ML1080-4EF	0,55	4	80	1500	19Ø	8,9
ML1083-4AF	0,75	4	80	1440	19Ø	9,6	ML1083-4EF	0,75	4	80	1500	19Ø	9,6
ML1093-4AF	1,5	4	90L	1400	24Ø	16	ML1093-4EF	1,5	4	90L	1500	24Ø	16
ML1101-4AF	2,2	4	100L	1400	24Ø	23	ML1101-4EF	2,2	4	100L	1500	24Ø	23

400V 3 PHASE QL3 ALUMINIUM MOTOR RANGE IP55

Features

- Low Voltage TEFC aluminium frame industrial Motors
- Standard Efficiency to IEC 60034-30 (IE1)
- Ratings from 0.12kW up to 18.5kW @ 400V
- Insulation Class F
- 2, 4 and 6 pole motors
- Other kW ratings available on request

- Altitude of operation max 1000m.a.s.l.
- Max ambient operating temperature 40°C
- Supply 3 Phase 400VAC 50Hz
- Duty cycle S1
- Standards SANS 1804-1/2, IEC 60034-1
- B3 Foot Mount & B35 Foot & Flange mounting



Code 400VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)	Code 400VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)
2 Pole Motors													
QL3060-2*U	0,18	2	63	2720	11Ø	4,3	QL3112-2*H	4	2	112M	2890	28Ø	29
QL3063-2*U	0,25	2	63	2720	11Ø	4,9	QL3115-2*H	5,5	2	112M	2890	28Ø	32
QL3070-2*U	0,37	2	71	2740	14Ø	5,8	QL3130-2*H	5,5	2	132S	2900	38Ø	40
QL3073-2*U	0,55	2	71	2740	14Ø	7	QL3131-2*H	7,5	2	132S	2900	38Ø	45
QL3080-2*U	0,75	2	80	2830	19Ø	10	QL3135-2*H	9,2	2	132M	2900	38Ø	50
QL3083-2*U	1,1	2	80	2830	19Ø	11	QL3163-2*H	11	2	160M	2930	42Ø	91
QL3090-2*U	1,5	2	90S	2840	24Ø	14	QL3164-2*H	15	2	160M	2930	42Ø	94
QL3093-2*U	2,2	2	90L	2840	24Ø	16	QL3166-2*H	18,5	2	160L	2930	42Ø	115
QL3101-2*U	3	2	100L	2870	28Ø	21							
4 Pole Motors													
QL3060-4*U	0,12	4	63	1310	11Ø	4,4	QL3102-4*U	3	4	100L	1430	28Ø	24
QL3063-4*U	0,18	4	63	1310	11Ø	4,9	QL3112-4*H	4	4	112M	1440	28Ø	30
QL3070-4*U	0,25	4	71	1330	14Ø	6	QL3115-4*H	5,5	4	112M	1440	38Ø	38
QL3073-4*U	0,37	4	71	1330	14Ø	6,5	QL3130-4*H	5,5	4	132S	1440	38Ø	47
QL3080-4*U	0,55	4	80	1390	19Ø	10	QL3133-4*H	7,5	4	132M	1440	28Ø	55
QL3083-4*U	0,75	4	80	1390	19Ø	11	QL3135-4*H	9,2	4	132M	1400	38Ø	60
QL3090-4*U	1,1	4	90S	1400	24Ø	15	QL3163-4*H	11	4	160M	1460	42Ø	97
QL3093-4*U	1,5	4	90L	1400	24Ø	17	QL3166-4*H	15	4	160L	1460	42Ø	113
QL3101-4*U	2,2	4	100L	1430	28Ø	21							
6 Pole Motors													
QL3080-6*U	0,37	6	80	890	19Ø	9,1	QL3112-6*U	2,2	6	112M	940	28Ø	30
QL3083-6*U	0,55	6	80	890	19Ø	10	QL3130-6*U	3	6	132S	940	38Ø	44
QL3090-6*U	0,75	6	90S	910	24Ø	15	QL3133-6*H	4	6	132M	960	38Ø	50
QL3093-6*U	1,1	6	90L	910	24Ø	17	QL3134-6*H	5,5	6	132M	960	38Ø	59
QL3102-6*U	1,5	6	100L	940	28Ø	21							

* Add A for B3 Foot Mount, Add E for B35 Flange & Foot Mount

NV3 STANDARD EFFICIENCY CAST IRON MOTORS IP55

Features

- Low Voltage TEFC frame cast iron Electric Motors
- Standard Efficiency to IEC 60034-30 (IE1)
- Ratings from 0,37kW up to 385kW
- **IP55** enclosure & Class F insulation
- 2, 4 and 6 pole motors
- Other kW ratings available on request
- Altitude of operation max 1000m.a.s.l.
- Max ambient operating temperature 40°C
- Supply 3 Phase 400/525VAC 50Hz
- Duty cycle S1
- Standards SANS 1804-1/2, IEC 60034-1
- B3 Foot Mount & B35 Foot & Flange mounting



Code 400VAC	Code 525VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)	Code 400VAC	Code 525VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)
-------------	-------------	----	--------------	------------	-----------	------------	-------------	-------------	-------------	----	--------------	------------	-----------	------------	-------------

2 Pole Motors

NV3080-2*U	NV3080-2*W	0,75	2	80	2840	19Ø	16	NV3135-2*H	NV3135-2*B	9,2	2	132S	2900	38Ø	70
NV3083-2*U	NV3083-2*W	1,1	2	80	2840	19Ø	17	NV3163-2*H	NV3163-2*B	11	2	160M	2930	42Ø	100
NV3090-2*U	NV3090-2*W	1,5	2	90S	2850	24Ø	20	NV3164-2*H	NV3164-2*B	15	2	160M	2930	42Ø	110
NV3093-2*U	NV3093-2*W	2,2	2	90L	2850	24Ø	25	NV3166-2*H	NV3166-2*B	18,5	2	160L	2930	42Ø	125
NV3101-2*U	NV3101-2*W	3	2	100L	2880	28Ø	30	NV3183-2*H	NV3183-2*B	22	2	180M	2940	48Ø	175
NV3112-2*H	NV3112-2*B	4	2	112M	2880	28Ø	38	NV3206-2*H	NV3206-2*B	30	2	200L	2950	55Ø	225
NV3130-2*H	NV3130-2*B	5,5	2	132S	2900	38Ø	57	NV3207-2*H	NV3207-2*B	37	2	200L	2950	55Ø	380
NV3131-2*H	NV3131-2*B	7,5	2	132S	2900	38Ø	60								

4 Pole Motors

NV3073-4*U	NV3073-4*W	0,37	4	71	1375	14Ø	15	NV3133-4*H	NV3133-4*B	7,5	4	132M	1440	38Ø	70
NV3080-4*U	NV3080-4*W	0,55	4	80	1390	19Ø	17	NV3135-4*H	NV3135-4*B	9,2	4	132M	1460	38Ø	85
NV3083-4*U	NV3083-4*W	0,75	4	80	1390	19Ø	18	NV3163-4*H	NV3163-4*B	11	4	160M	1460	42Ø	110
NV3090-4*U	NV3090-4*W	1,1	4	90S	1400	24Ø	20	NV3166-4*H	NV3166-4*B	15	4	160L	1470	42Ø	130
NV3093-4*U	NV3093-4*W	1,5	4	90L	1400	24Ø	23	NV3183-4*H	NV3183-4*B	18,5	4	180M	1470	48Ø	165
NV3101-4*U	NV3101-4*W	2,2	4	100L	1420	28Ø	30	NV3186-4*H	NV3186-4*B	22	4	180L	1470	48Ø	180
NV3102-4*U	NV3102-4*W	3	4	100L	1420	28Ø	35	NV3207-4*H	NV3207-4*B	30	4	200L	1470	55Ø	240
NV3112-4*H	NV3112-4*B	4	4	112M	1440	28Ø	40	NV3220-4*H	NV3220-4*B	37	4	225S	1480	60Ø	280
NV3130-4*H	NV3130-4*B	5,5	4	132S	1440	38Ø	60								

6 Pole Motors

NV3080-6*U	NV3080-6*W	0,37	6	80	890	190	15	NV3134-6*H	NV3134-6*B	5,5	6	132M	960	380	70
NV3083-6*U	NV3083-6*W	0,55	6	80	890	190	17	NV3163-6*H	NV3163-6*B	7,5	6	160M	970	420	105
NV3090-6*U	NV3090-6*W	0,75	6	90S	910	240	20	NV3166-6*H	NV3166-6*B	11	6	160L	970	420	120
NV3093-6*U	NV3093-6*W	1,1	6	90L	910	240	23	NV3186-6*H	NV3186-6*B	15	6	180L	970	480	175
NV3102-6*U	NV3102-6*W	1,5	6	100L	920	280	30	NV3206-6*H	NV3206-6*B	18,5	6	200L	970	550	220
NV3112-6*U	NV3112-6*W	2,2	6	112M	940	280	38	NV3207-6*H	NV3207-6*B	22	6	200L	980	550	235
NV3130-6*U	NV3130-6*W	3	6	132S	960	380	55	NV3223-6*H	NV3223-6*B	30	6	225M	980	600	300
NV3133-6*H	NV3133-6*B	4	6	132M	960	380	63	NV3253-6*H	NV3253-6*B	37	6	250S	980	700	370

* Add **A** for B3 Foot Mount, Add **E** for B35 Foot & Flange Mount

Features

- Low Voltage TEFC frame Cast Iron Electric Motors
- Efficiency rating IE 3
- Ratings from 0,37kW to 450kW
- Class F, VPI Insulation, **IP66** Enclosures
- 2, 4, 6, & 8 pole motors
- Other kW ratings available on request
- Altitude of operation max 1000m.a.s.l.
- Max ambient operating temperature 40°C
- Supply 3 Phase 400/525VAC 50Hz
- Duty cycle S1
- Standards SANS 1804-1/2, IEC 60034-1
- B3 Foot Mount & B35 Foot & Flange mounting



Code 400VAC	Code 525VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)	Code 400VAC	Code 525VAC	kW	No. of Poles	Frame Size	Speed RPM	Shaft (mm)	Weight (kg)
-------------	-------------	----	--------------	------------	-----------	------------	-------------	-------------	-------------	----	--------------	------------	-----------	------------	-------------

2 Pole Motors

LS7080-2*U	LS7080-2*W	0,75	2	80	2840	190	16	LS7131-2*H	LS7131-2*B	7,5	2	132S	2925	380	70
LS7083-2*U	LS7083-2*W	1,1	2	80	2840	190	17,5	LS7163-2*H	LS7163-2*B	11	2	160M	2950	420	121
LS7090-2*U	LS7090-2*W	1,5	2	90S	2895	240	19,5	LS7164-2*H	LS7164-2*B	15	2	160M	2950	420	132
LS7093-2*U	LS7093-2*W	2,2	2	90L	2895	240	23,5	LS7166-2*H	LS7166-2*B	18,5	2	160L	2950	420	149
LS7101-2*U	LS7101-2*W	3	2	100L	2890	280	38	LS7183-2*H	LS7183-2*B	22	2	180M	2955	480	191
LS7112-2*H	LS7112-2*B	4	2	112M	2890	280	49	LS7206-2*H	LS7206-2*B	30	2	200L	2965	550	290
LS7130-2*H	LS7130-2*B	5,5	2	132S	2920	380	63	LS7207-2*H	LS7207-2*B	37	2	200L	2965	550	315

4 Pole Motors

LS7073-4*U	LS7073-4*W	0,37	4	71	1330	140	16	LS7130-4*H	LS7130-4*B	5,5	4	132S	1460	380	66
LS7080-4*U	LS7080-4*W	0,55	4	80	1330	190	17	LS7133-4*H	LS7133-4*B	7,5	4	132M	1465	380	78
LS7083-4*U	LS7083-4*W	0,75	4	80	1390	190	18,5	LS7163-4*H	LS7163-4*B	11	4	160M	1475	420	122
LS7090-4*U	LS7090-4*W	1,1	4	90S	1440	240	24	LS7166-4*H	LS7166-4*B	15	4	160L	1475	420	140
LS7093-4*U	LS7093-4*W	1,5	4	90L	1440	240	29,5	LS7183-4*H	LS7183-4*B	18,5	4	180M	1470	480	188
LS7101-4*U	LS7101-4*W	2,2	4	100L	1440	280	39,5	LS7186-4*H	LS7186-4*B	22	4	180L	1470	480	193
LS7102-4*U	LS7102-4*W	3	4	100L	1440	280	43,5	LS7207-4*H	LS7207-4*B	30	4	200L	1475	550	295
LS7112-4*H	LS7112-4*B	4	4	112M	1440	280	52	LS7220-4*H	LS7220-4*B	37	4	225S	1480	600	308

6 Pole Motors

LS7080-6*U	LS7080-6*W	0,37	6	80	885	190	15	LS7134-6*H	LS7134-6*B	5,5	6	132M	970	380	82
LS7083-6*U	LS7083-6*W	0,55	6	80	885	190	16	LS7163-6*H	LS7163-6*B	7,5	6	160M	980	420	119
LS7090-6*U	LS7090-6*W	0,75	6	90S	935	240	23	LS7166-6*H	LS7166-6*B	11	6	160L	980	420	139
LS7093-6*U	LS7093-6*W	1,1	6	90L	935	240	28,5	LS7186-6*H	LS7186-6*B	15	6	180L	980	480	178
LS7102-6*U	LS7102-6*W	1,5	6	100L	950	280	37,5	LS7206-6*H	LS7206-6*B	18,5	6	200L	980	550	265
LS7112-6*U	LS7112-6*W	2,2	6	112M	940	280	48	LS7207-6*H	LS7207-6*B	22	6	200L	980	550	280
LS7130-6*U	LS7130-6*W	3	6	132S	970	380	65	LS7223-6*H	LS7223-6*B	30	6	225M	980	600	315
LS7133-6*H	LS7133-6*B	4	6	132M	970	380	73	LS7253-6*H	LS7253-6*B	37	6	250S	990	700	369

8 Pole Motors

LS7090-8*U	LS7090-8*W	0,37	8	90S	670	240	24	LS7164-8*H	LS7164-8*B	5,5	8	160M	730	420	114
LS7093-8*U	LS7093-8*W	0,55	8	90L	670	240	26	LS7166-8*H	LS7166-8*B	7,5	8	160L	730	420	132
LS7101-8*U	LS7101-8*W	0,75	8	100L	680	280	33	LS7186-8*H	LS7186-8*B	11	8	180L	730	480	170
LS7102-8*U	LS7102-8*W	1,1	8	100L	680	280	38	LS7207-8*H	LS7207-8*B	15	8	200L	730	550	260
LS7112-8*U	LS7112-8*W	1,5	8	112M	700	280	45	LS7220-8*H	LS7220-8*B	18,5	8	225S	730	600	268
LS7130-8*U	LS7130-8*W	2,2	8	132S	710	380	68	LS7223-8*H	LS7223-8*B	22	8	225M	730	600	288
LS7133-8*U	LS7133-8*W	3	8	132M	710	380	70	LS7253-8*H	LS7253-8*B	30	8	250S	735	700	372
LS7163-8*H	LS7163-8*B	4	8	160M	730	420	104	LS7255-8*H	LS7255-8*B	37	8	250M	740	700	395

* Add **A** for B3 Foot Mount, Add **E** for B35 Flange & Foot Mount

ELECTRIC MOTOR / PUMP PROTECTION RELAYS



TE01



TE02/TE03

M1

Pump and Motor Protection / Phase Angle Relays

Specifications

Supply Voltage	230VAC $\pm 20\%$ Single phase 400VAC or 525VAC $\pm 20\%$ 3 phase 415VAC $\pm 20\%$ 3 phase (TE02/TE03)
Power Consumption	2VA
Calibration	Manual or Automatic (Model dependant)
Dry Trip Level	10% of calibrated phase angle / current 2s delay
Dry Restart Delay	15 minutes to 5 hours adjustable
Output Relay	SPDT 250VAC/10A
Voltage Trip Level	10% of calibrated voltage, 2 sec delay (TE02/TE03)
Current Trip Level	20% of calibrated current, 1 sec delay (TE02/TE03)
Rapid Start Cycle	3 per 15 minutes maximum (TE03 only)

LED Status Indication TE02/TE03

Green	Amber	Red	Condition
ON	OFF	OFF	Normal Pumping
FLASH	OFF	OFF	Dry-timing or phase failure/reversal
OFF	ON	OFF	Supply Voltage Low/High
OFF	FLASH	OFF	Rapid Cycle
OFF	OFF	ON	Motor Overload or Phase Failure
ON	ON	ON	TE02/3 Uncalibrated
FLASH	FLASH	FLASH	TE02/3 Calibrating
OFF	OFF	OFF	Unable to Calibrate

Selection Guide

Code	TE01*	TE02*	TE03*
11 Pin Plug In	•	•	•
Running dry- Under load blocked in/outlet	•	•	•
Overcurrent		Auto	Auto
Phase Failure / Reversal		•	•
Over / Under voltage		•	•
Star/Delta or Soft Start	•**	•	•
Locked Rotor		•	•
Shunt Required	•		
Rapid pump start protection			•
Cut-out over 12 starts/hour			•
LED Status Indication			•
Calibration	Manual	Auto	Auto
Tank Control (float switch)			•

*Add to Code: **230V** (230VAC), **400V** (400VAC), **415V** (415VAC), **525V** (525VAC) **TE01/S version only

Accessories

Code	Description
TE01 SHUNT R	Spare Red Shunt
TE01 SHUNT W	Spare White Shunt

Current Transformer Selection Chart for TE Series

230VAC					400VAC										
TE01	-	PW155	PW205	PW255	-	-	PW205	PW305	PW405	PW405	DS-505	DS-755	DS-1005	DS-1005	DS-1055
TE02/03	-	PW155	PW205	PW255	-	PW155	PW205	PW305	PW405	PW405	DS-505	DS-755	DS-1005	DS-1005	DS-1055
HP	0.36-1.1	1.5	2	3	0.5-1.5	2-7.5	10	15	20	25	30	40	50	60	75
Kw	0.25-0.75	1.1	1.5	2.2	0.37-1.1	1.5-5.5	7.5	11	15	18.5	22	30	37	45	55
Shunt	White				Red	White									

ELECTRONIC MOTOR & OVERLOAD PROTECTION RELAYS

RHOMBERG



Phase Angle Motor Protection Relays

Mainly used for borehole protection with liquid level control tank filling. DIN mount.

Code	Description	Max. Current Continuous
MP820/230VAC-SP	Single phase motor protection relay up to 1.1kW	* 15A
MP825/230VAC-SP	Single phase motor protection relay above 1.1kW	* 15A
MP830/230VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A
MP830/400VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A
MP830/525VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A
MP835/230VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A
MP835/400VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A
MP835/525VAC-SP	Three phase motor protection relay up to 3.7kW	* 12A

* For higher load current use 5 Amp CT to achieve accurate calibration

Single Phase Features

- MP820:**
- Direct in-line current sensing of motor, up to 1.1kW
 - Auto calibration of over/under current and voltage
 - Start up delay (3 seconds standard)
 - Adjustable reset time 15 mins to 24 hrs
 - Latching on overload conditions
 - Liquid Level Control (50k Ω)
 - Reset Lock out, Max 3 reset attempts in 15 minutes
- MP825:** As for MP820 plus
- Latching of over and under load conditions
 - Manual adjustment of under load sensitivity (after auto calibration)

Three Phase Features

- MP830:**
- Direct in-line current sensing of motor, up to 3.7kW
 - Auto calibration of over/under current and voltage
 - Start up delay (3 seconds standard)
 - Adjustable reset time 15 mins to 24 hrs
 - Latching of over load conditions
 - Liquid Level Control (50k Ω)
 - Reset Lock out, Max 3 reset attempts in 15 minutes
 - Phase sequence/phase failure detection
- MP835:** As for MP830 plus
- Latching of over and under load conditions
 - Manual adjustment of under load sensitivity (after auto calibration)

ELECTRIC MOTOR / PUMP PROTECTION RELAYS

Motor Scope Pump Protection Relay - Protection of AC motors and their driven systems can be achieved by limiting the maximum and minimum consumed power. Built-in Bluetooth monitoring and control.



TRIO



Easy to use app with time setting for running and stopping of pumps. Motor status and faults can be seen via the app and downloaded.

Features	UNO	TRIO	NEW SUPRA R3	NEW SUPRA R3B	NEW SUPRA R3C
Description	1 Phase 230V 0.37-2.2kW	3 Phase 400V 0.37k-5.6kW	3 Phase 400V 5.6-37kW	3 Phase 525V 5.6-37kW	3 Phase Industrial ≤1000V
Running dry, Underload, Blocked inlet / outlet	•	•	•	•	•
Over Current	•	•	•	•	•
Phase failure Phase reversal	-	•	•	•	•
Phase Imbalance	-	•	•	•	•
Over / Under voltage	•	•	•	•	•
Star delta and Soft starter connection	-	•	•	•	•
Tank control (float / Pressure switch) 5VDC	•	•	•	•	•
Locked Rotor	•	•	•	•	•
CT250/1 Supplied with unit	-	-	•	•	•
Bluetooth NCS Toolbox App	•	•	•	•	•
WiFi + Modbus over WiFi Built-in	-	-	•	•	•



Electronic Overload Protection Relays

Code	Current Range	OL	PL	LR	PU	PR	STL	UL	ALT	GF	Trip Type	Disp Type	Control Voltage
CSMPA-60-T 6A	0.5-6A	•	•	-	-	-	-	-	-	-	D	LED	230VAC
CSMPA-60-T 60A	5-60A	•	•	-	-	-	-	-	-	-	D	LED	230VAC
CSMPA-22-3S-5A0	0.3-1.5A	•	•	-	•	-	•	-	-	-	I	LED	230VAC
CSMPA-22-3S5A	1-5A*	•	•	-	•	-	•	-	-	-	I	LED	230VAC
CSMPA-40R 1-SA	0.3-1.5A	•	•	-	•	•	•	-	-	-	I	LED	230VAC
CSMPA-40R 5A	1-5A*	•	•	-	•	•	•	-	-	-	I	LED	230VAC
CSMPM-06-SZ	0.5-6A	•	•	•	•	•	•	•	•	•	I + D	LED	230VAC
CSMPM-60-SZ	5-60A	•	•	•	•	•	•	•	•	•	I + D	LED	230VAC

Key: OL: over current PL: Phase Loss LR: Locked Rotor PU: Phase Unbalance PR: Phase Reverse
STL: Stalling UL: Under Current ALT: Alert (60-110%) GF: Ground Fault I: Inverse Time
D: Definite Time •: Available - : not available LED: Red & Green SSD: Seven Segment Display

Accessories

Code	Description
CSMPM - 1.5M	1.5m ext cable for CSMPM - 06/60-SZ
CSMPM - 4M	4m ext cable for CSMPM - 06/60-SZ

*NOTES: **CSMPA22** - models with current range 1 - 5A can be used up to 600A with suitable ratios CTs having 5A secondary, class 1 accuracy.

Ground Fault Core Balance Transformer

Code	Hole Ø
Z-CT D30	30mm
Z-CT D50	50mm
Z-CT D65	65mm
Z-CT D80	80mm

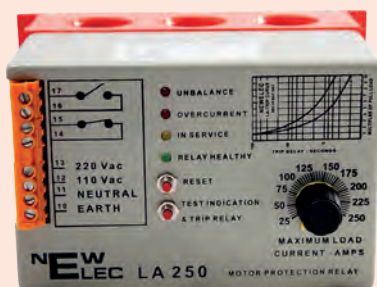


CSMPA-60-T



CSMPM-06-SZ

ELECTRONIC MOTOR PROTECTION RELAYS



Typical Applications:
Pump Motors, Compressor Motors

LA-Series Motor Protection Relay

Current Range	Code Standard
1-10A	LA-010
5-50A	LA-050
10-100A	LA-100
25-250A	LA-250

Features - See Selection Chart for full list

The **LA** motor protection relay provides superior thermal overload and phase unbalance protection in applications that would traditionally have used thermal bi-metal relays. The integral three phase current transformer module block with 22mm primary apertures facilitates straight through conductor routing from the main contactor to the electric motor in the range of 1 to 250A



Typical Applications:
Pump Motors, Compressor Motors
MCC Applications

KA-Series Motor Protection Relay

Current Range	Code KA	CT's Required
0.1-1A	KA-001	-
0.5-5A	KA-005	-
1-10A	KA-010	-
2.5-25A	KA-025	-
5-50A	KA-050	-
10-100A	KA-100	100:5
20-200A	KA-200	200:5

Features - See Selection Chart for full list

The **KA** relays provide a single unit solution in pumping applications that traditionally would have used a combination of thermal overload, undercurrent and restart timers. The unit provides overload, underload, single-phasing, unbalanced current, overvoltage, undervoltage and phase rotation protection.



KD-FLED



KD-RDU420

Typical Applications:
Conveyor, Compressor, Crusher,
Fan & Pump Motor Protection

KD-Series Motor Protection Relay - Supply Volts 110/230VAC

Current Range	Code KD	CT's Required
0.5-5A	KD-005	-
1-10A	KD-010	-
2.5-25A	KD-025	-
5-50A	KD-050	-
10-100A	KD-100	100:5 Class 1 2.5VA
25-200A	KD-200	200:5 Class 1 2.5VA
40-400A	KD-400	400:5 Class 1 2.5VA

Accessories

Code	Description
KD-RDU420	Door mount Paramatization unit to set KD parameters and display values and faults. Provides IR link to MMI or Laptop.
KD-FLED	KD-FLED Remote display
CAB0100	RJ11-RJ11: Cable for connecting KD-FLED/KD-RDU420 to relay
CAB0101	RJ11-RS232: Cable for connection between relay and computer
CAB0016	USB to serial converter

Features - See Selection Chart for full list

A comprehensive low voltage Electronic Motor Protection relay. These relays boast a wide range of user-selectable protection features. Easy to setup via a man-to-machine interface computer with free setup software, the user-selectable settings are a pleasure to work with. Thermal overload, earth insulation lockout, earth leakage and short-circuit protection, along with frequency and power factor measurement, are just some features which, combined with the 2000 event records and 60 last fault records, make this a worldclass product. For Protection Relay with built-in Field Bus Communication, see **KG** pg 6.25

ELECTRONIC MOTOR PROTECTION RELAYS



MA-250-PM (MA-Relay)



MA-RDU-1



MA-RDU216

Typical Applications:

Buffalo feeder, Shuttle Cars
Conveyers, MCC Applications

MA-Series Electronic Motor Protection Relays

Current Range	Code	Code c/w Coms
0.5-5A	MA-005	MA-005-*
1-10A	MA-010	MA-010-*
5-50A	MA-050	MA-050-*
10-100A	MA-100	MA-100-*
25-250A	MA-250	MA-250-*

For larger currents, use **MA-005** with 3 x 5A CL1 CTs

* Add protocol to code (**PM**) profibus , (**MM**) Modbus

Accessories

Code	Description
MA-CAB1	Lap top cable 1m
MA-CD	CD Front End Software
MA-RDU216	Supplied with 1.5m cable and security dongle
MA-RDU-1	Door mount Fault indicator c/w 1.5m cable

Features - See Selection Chart for full list

Used as either a standalone Electronic Motor Protection Relay or as part of an automation network process communicating to a PLC.

Thermal curves (Class 3 to 35), to IEC 60255-8, 2 x PTC 100 inputs, earth leakage, earth fault and short-circuit protection, load loss protection, over and undervoltage protection and voltage symmetry are all features available through the range 5 to 250A. The integrated C.T. block also includes the earth leakage core balance C.T.



FPR0409



FPR0401/2



BTX0005



FPR0404/5/6

Typical Applications:

All Motor Driven Applications
that require PLC Integrated
Motor Control

New Code Motor Protection Relay - Smart IED

Code	Current Range
FPR0650	New Code MK2 With Profibus Communication
FPR0651	New Code MK2 With Modbus Communication
FPR0436	New Code MK2 With Modbus TCP/Profinet

Accessories

Code	Description
FPR0401	CT module 30-300A , 110-550V converter
FPR0402	CT module 10-100A , 110-550V converter
FPR0404	CT module 0.5 - 5A , 110-550V converter
FPR0405	CT module 2.5-25A, 110-550V converter
FPR0406	CT module 5-50A ,110-550V converter
FPR0407	Memory module for external settings
FPR0408	Cable from CT module to relay , 1m
FPR0409	New Elec cable from CT module to relay , 300mm
BTX0004	Core Balance CT 43mm
BTX0001	Core Balance CT 60mm
BTX0002	Core Balance CT 100mm

Features - See Selection Chart for full list

Micro-controller based precision instrument for three-phase induction motor protection with advanced control logic features as well as multiple motor starter control circuit configurations. The current transformers, including the core balance current transformers are external.

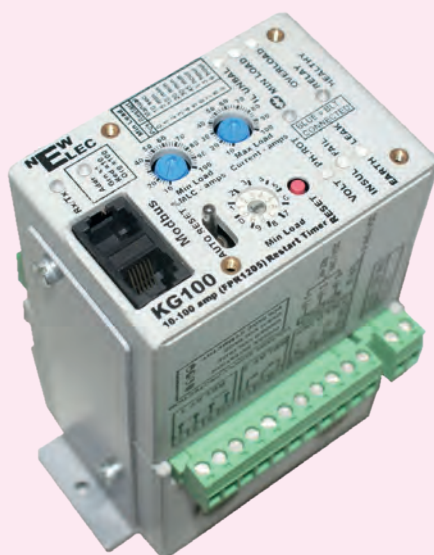
Automation Features

- Timers
- Real Time Clock
- Start Control Logic
- Logic Function Blocks
- 7 Field Inputs
- Motor Parameter Calculator
- 4 Programmable Outputs
- 3 Phase Recorder
- Multiple Comms Protocols
- On Board Simulator for Training / Commissioning

Management Features

- Power Factor Measurement
- Power Consumption Measurement
- 35 Last Fault Records
- Statistical Data
- 1400 Event Records

ELECTRONIC MOTOR PROTECTION RELAYS



Typical Applications:

Feeder Protection, Motor Protection
with advanced reporting,
Underground applications

KG-Series Electronic Motor Protection Relay - Supply Volts 110/230VAC

Current Range	Code (Modbus & Bluetooth)	CT's Required
0.5-5A	KG-005	Internal
1.10A	KG-010	Internal
2.5-25A	KG-025	Internal
5-50A	KG-050	Internal
10-100A	KG-100	100:5 Class 1 2.5VA

Features - See Selection Chart for full feature list

The **KG** relay is a Power Quality Monitoring and Protection Relay with individual configurable trip settings from 2nd to 31st harmonic levels as well as separate % THD on both Voltage and current levels.

The **KG** can be configured as a low Voltage 3 phase Feeder or Motor Protection Relay with integral starter protection and control logic. A Smartphone Application for Bluetooth LE enables communication through closed flameproof steel enclosures from 10 meters enabling monitoring and configuration. Housed in a ruggedized enclosure for high vibration applications, with integral Modbus-RTU configured as multidrop configuration using dual RJ11 sockets with patch cables to assist with quick field connection without crimping tools or specialized skillset requirements.

Communication Type	Usage
Modbus-RTU	NewElec frontend on Windows™ SCADA communication variable baud rate (19200bps default) Modbus-RTU enabled HMI's
Bluetooth LE	NewElec Android app for Android OS smartphones and tablets Modbus-RTU protocol in Bluetooth LE for SCADA systems

NewElec Protection Relay Selection Chart

Features	LA	KA	KD	MA	New Code	KG	Features	KD	MA	New Code	KG
Overloading Protection	✓	✓	✓	✓	✓	✓	Earth Fault	✓	✓	✓	✓
Thermal Memory	✓	✓	✓	✓	✓	✓	Earth Insulation Lockout	✓		✓	✓
Locked Rotor on Start Protection	✓	✓	✓	✓	✓	✓	Fault & Event Records	✓	✓	✓	✓
Unbalance Load Protection	✓	✓	✓	✓	✓	✓	Integrated Starter Logic			✓	✓
Phase Loss Protection	✓	✓	✓	✓	✓	✓	Field Inputs		✓	✓	✓
Latched LED Trip Indication	✓	✓	✓	✓	✓	✓	Programmable Output Contact	✓	✓	✓	✓
Overload Auto Reset Function	✓	✓	✓	✓	✓	✓	Uploadable Event and Fault Records	✓	✓	✓	✓
Earth Leakage Protection			✓	✓	✓	✓	Multi Protocol Field Bus Communications		✓	✓	✓
Short Circuit Protection			✓	✓	✓	✓	Profibus DP (DPV0)		✓		✓
Locked Rotor while Running (Jam)			✓	✓	✓	✓	Profibus DP (DPV1)			✓	✓
Load Loss (Dry Run) Protection		✓	✓	✓	✓	✓	Modbus		✓	✓	✓
4 to 20 mA Output Loop for Motor Load					✓	✓	Canbus		✓	✓	
Phase Rotation Protection		✓	✓	✓	✓	✓	Rapid reconfiguration memory module			✓	✓
MCCB / Contactor Coordinated Tripping			✓	✓	✓	✓	RTD PTC		✓	✓	
Overvoltage Protection		✓	✓	✓	✓	✓	RTD PT 100			✓	
Undervoltage Protection		✓	✓	✓	✓	✓	RTD PT 1000			✓	
Voltage Phase Symmetry		✓	✓	✓	✓	✓	Expandable I/O Module			✓	✓
Restart Timer for Load Loss			✓	✓	✓		Door Mounted MMI	✓	✓	✓	
Starts Per Hour			✓		✓	✓	Harmonic Trip and analyse				✓
Power Factor Measurement			✓		✓	✓	Breaker failure protection				✓
Real Power Used					✓	✓	Reset logic				✓
Apparent Power Used			✓		✓	✓	Bluetooth Configuration				✓

BOREHOLE PUMP CONTROLS



BETR3-055

Economy Borehole Control Panel **IP43** - Size: 275 x 300 x 150mm

Weatherproof steel enclosed control panels with 3 conduit entries, On-off switch, Pump protection relay with provision for float switch, CT where required, Incoming isolator, Surge protection & contactor. For features of the different protection relays, see pg 6.21 & 6.22

Motor 230V	FLC	UNO	TE03	TE03 + Ammeter
≤ 0.75kW	≤ 6A	BEUN1-015	-	-
1.1kW	8.8A	BEUN1-015	BETE1-011	BETE1A-011
1.5kW	11.8A	BEUN1-015	BETE1-015	BETE1A-015
2.2kW	17A	BEUN1-022	BETE1-022	BETE1A-022

Motor 400V	FLC	TRIO	SUPRA	TE03	TE03 + Ammeter
≤ 4.0kW	9A	BETR3-055	-	BETE3-040	BETE3A-040
≤ 5.5kW	13.2A	BETR3-055	-	BETE3-055	BETE3A-055
7.5kW	17.8A	-	BESU3-075	BETE3-075	BETE3A-075

DOL Borehole Pump Control Panel with Motorscope Relay **IP54**

Fitted in **IP54** steel or polycarbonate / ABS enclosure with Door-interlocked isolator, Surge protection, Contactor, Motorscope relay with protection fuses and CT. Door fitted with "POWER" on and "RUN" LED pilot-lights, Hand/Off/Auto selector switch and viewing window for Motorscope LED array. Provision for remote float switch. For features of the different protection relays, see pg 6.22



TRIO-SP5.6



TRIO-SP5.6/P

Pump kW	Code		Enclosure Type	400V Size (H x W x D)	525V Size (H x W x D)
	400VAC	525VAC*			
0.37 - 5.6	TRIO-SP5.6/P	-	Plastic	400 x 300 x 180	-
0.37 - 5.6	TRIO-SP5.6*	SUPRA-5-SP11	Steel	400 x 300 x 200	500 x 400 x 200
7.5 - 11	SUPRA-SP11*	SUPRA-5-SP11		400 x 300 x 200	500 x 400 x 200
15	SUPRA-SP15*	SUPRA-5-SP15		400 x 300 x 200	500 x 400 x 200
18.5	SUPRA-SP18*	SUPRA-5-SP22		500 x 400 x 200	600 x 400 x 260
22	SUPRA-SP22*	SUPRA-5-SP22		500 x 400 x 200	600 x 400 x 260
30	SUPRA-SP30*	SUPRA-5-SP30		500 x 400 x 200	600 x 400 x 260
37	SUPRA-SP37*	SUPRA-5-SP37		500 x 400 x 200	600 x 400 x 260
45	SUPRA-SP45*	SUPRA-5-SP45		600 x 400 x 260	600 x 400 x 260
55	SUPRA-SP55*	SUPRA-5-SP55		700 x 500 x 260	600 x 400 x 260
75	SUPRA-SP75*	SUPRA-5-SP75		700 x 500 x 260	700 x 500 x 260
90	-	SUPRA-5-SP90		-	700 x 500 x 260

* Add **-PSL** to code for pressure switch lock-out facility. * 525VAC Versions - 110V Control

Compact Borehole DOL Starter with Motorscope Protection

With Contactor for motors up to 5.6kW @ 400V. Protection features: Event memory, dry run, locked rotor, overload, phase failure/reversal/imbalance, over/under voltage, auto calibration for easy commissioning and LED array for full status indication. Housed in compact **IP56** polycarbonate enclosure. Connection for float switch.



TRIO PANEL

Code	Description	Size (H x W x D)
TRIO PANEL	Pump controller for 400V 3Ph Motors 0.37 - 5.6kW	240 x 190 x 90mm

COMPRESSOR STARTERS



AS15

Star-Delta Starters **IP56**

with on-off selector switch and provision for pressure switch connection. 415V Coils fitted.

Code	Motor kW @ 400V	Enclosure	Size (H x W x D)
AS7.5	7.5kW	Plastic	300 x 220 x 180mm
AS11	11kW	Plastic	300 x 220 x 180mm
AS15	15kW	Plastic	380 x 300 x 180mm

BOREHOLE PUMP CONTROLS



DOL Borehole Pump Control Panels with TE03 Pump Protection Relay

Protection Features: Dry run, locked rotor, overload, phase failure/reverse/imbalance, over/under voltage, LED Status indication through window. Auto calibration for ease of commissioning.

General Features: Supplied with an Isolator, Contactor or Soft Starter, CT (where required), Lightning Arrestors, **TE03** protection relay, "Power On" and "Pump Run" LED indication lights.

Control Options: Standard: Hand / Off / Auto Selector Switch / Float Switch
LL: Hand / Off / Auto Selector Switch / Liquid Level Relay
U: Hand / Off / Auto Selector / 24-hour Timer

For optional extras, see below.



Pump kW	Polycarbonate Enclosure IP54			Metal Enclosure IP54		
	Float Switch*	With Liquid Level*	With Time Switch	Float Switch*	With Liquid Level*	With Time Switch

Single Phase 230VAC DOL

0.75kW	B00S/IS/P U	B00S/IS/LL/P U	B00S/IS/U/P U	B00S/IS/S U	B00S/IS/LL/S U	B00S/IS/U/S U
1.1kW	B09S/IS/P U	B09S/IS/LL/P U	B09S/IS/U/P U	B09S/IS/S U	B09S/IS/LL/S U	B09S/IS/U/S U
1.5kW	B12S/IS/P U	B12S/IS/LL/P U	B12S/IS/U/P U	B12S/IS/S U	B12S/IS/LL/S U	B12S/IS/U/S U
2.2kW	B18S/IS/P U	B18S/IS/LL/P U	B18S/IS/U/P U	B18S/IS/S U	B18S/IS/LL/S U	B18S/IS/U/S U

Three Phase 400VAC DOL

4kW	B09T/IS/P N	B09T/IS/LL/P N	B09T/IS/U/P N	B09T/IS/S N	B09T/IS/LL/S N	B09T/IS/U/S N
5.5kW	B12T/IS/P N	B12T/IS/LL/P N	B12T/IS/U/P N	B12T/IS/S N	B12T/IS/LL/S N	B12T/IS/U/S N
7.5kW	B18T/IS/P N	B18T/IS/LL/P N	B18T/IS/U/P N	B18T/IS/S N	B18T/IS/LL/S N	B18T/IS/U/S N
11kW	B25T/IS/P N	B25T/IS/LL/P N	B25T/IS/U/P N	B25T/IS/S N	B25T/IS/LL/S N	B25T/IS/U/S N
15kW	B32T/IS/P N	B32T/IS/LL/P N	B32T/IS/U/P N	B32T/IS/S N	B32T/IS/LL/S N	B32T/IS/U/S N
18.5kW	B40T/IS/P N	B40T/IS/LL/P N	B40T/IS/U/P N	B40T/IS/S N	B40T/IS/LL/S N	B40T/IS/U/S N
22kW	B50T/IS/P N	B50T/IS/LL/P N	B50T/IS/U/P N	B50T/IS/S N	B50T/IS/LL/S N	B50T/IS/U/S N
30kW	B65T/IS/P N	B65T/IS/LL/P N	B65T/IS/U/P N	B65T/IS/S N	B65T/IS/LL/S N	B65T/IS/U/S N

Three Phase 400VAC Aucom EMX4e Soft Starter

5.5kW	BS05T/IS/P N	BS05T/IS/LL/P N	BS05T/IS/U/P N	BS05T/IS/S N	BS05T/IS/LL/S N	BS05T/IS/U/S N
7.5kW	BS07T/IS/P N	BS07T/IS/LL/P N	BS07T/IS/U/P N	BS07T/IS/S N	BS07T/IS/LL/S N	BS07T/IS/U/S N
11kW	BS11T/IS/P N	BS11T/IS/LL/P N	BS11T/IS/U/P N	BS11T/IS/S N	BS11T/IS/LL/S N	BS11T/IS/U/S N
15kW	BS15T/IS/P N	BS15T/IS/LL/P N	BS15T/IS/U/P N	BS15T/IS/S N	BS15T/IS/LL/S N	BS15T/IS/U/S N
18.5kW	BS18T/IS/P N	BS18T/IS/LL/P N	BS18T/IS/U/P N	BS18T/IS/S N	BS18T/IS/LL/S N	BS18T/IS/U/S N
22kW	BS22T/IS/P N	BS22T/IS/LL/P N	BS22T/IS/U/P N	BS22T/IS/S N	BS22T/IS/LL/S N	BS22T/IS/U/S N
30kW	BS30T/IS/P N	BS30T/IS/LL/P N	BS30T/IS/U/P N	BS30T/IS/S N	BS30T/IS/LL/S N	BS30T/IS/U/S N

Optional Extras for Borehole Pump Controls

Code	Description
EFS01	Ammeter Selector Switch up to 18.5kW
EFS02	Ammeter Selector Switch 22kW+
EFS03	Voltmeter 72 x 72, c/w Fuses - IP45
EFS04	Voltmeter Selector Switch
EFS05	Running Hour Meter 48 x 48
EFS19	Ammeter 72 x 72 - IP45 up to 18.5kW
EFS20	Ammeter 72 x 72 - IP45 22kW+

* Order Float Switch or Probes separately. See page 2.1 & 2.2

Note: When requesting a price or when ordering a starter with optional extra, please order optional extra as a separate line. Order example: 1) Borehole pump control 3 phase 5.5KW with isolator and liquid level control in a steel enclosure with running hour meter as optional extra.

Item 1: B12T/IS/LL/S N | Item 2: EFS05

Large sizes and wireless solutions available including GSM.

Contact our Panel Workshop



TE05

Compact Borehole DOL Starter with TE03 Protection

With Contactor for motors up to 5.6kW @ 400V and 2.2kW @ 230V. Protection features: Dry run, locked rotor, overload, phase failure/reversal/imbalance, over/under voltage, auto calibration for easy commissioning and LED array for full status indication. Housed in compact **IP56** polycarbonate enclosure with glands and on/off switch. Connection for float switch.

Standard - 190x140x70mm size

Standard - 190x140x70mm size			With Power Factor Corrector - 240x190x90mm size		
Code	Rated Voltage	Motor Rating	Code	Rated Voltage	Motor Rating
TE05M	230V	Up to 0.75kW	TE05MC-03	230V	0.37kW
TE05M-1	230V	1.1-2.2kW	TE05MC-05	230V	0.55kW
TE05Q	400V	4kW	TE05MC-07	230V	0.75kW
TE05Q-1	400V	5.6kW	TE05MC-11	230V	1.1kW
TE05N	415V	4kW	TE05MC-15	230V	1.5kW
TE05N-1	415V	5.6kW	TE05MC-22	230V	2.2kW

DOL STARTERS

Economy DOL Starters - 3ph



LE1-D123N305

BE1-T40 (Steel)

ILE1-D323N353

ALE1-D123N310

Economy DOL Starters - 1ph



For 230V Single Phase motors, 240V
Coil fitted, with Pre-Wired T1-L2 Link

3 Phase kW AC3		Overload Range	DOL Starter IP65	DOL Starters with isolator IP65	DOL Starters with ammeter IP54	1 Phase kW AC3 230VAC	Overload Current Range Fitted	DOL Starter IP65 230V - 1PH
400V	525V							
0.37kW	0.37kW	0.63 - 1A	LE1-D123N305	ILE1-D123N305	ALE1-D123N305	0.37kW	2.5 - 4A	LE1-D121U308
0.55kW	0.55 - 0.75kW	1 - 1.6A	LE1-D123N306	ILE1-D123N306	ALE1-D123N306	0.55kW	4-6A	LE1-D121U310
0.75 - 1.1kW	1.1 - 1.5kW	1.6 - 2.5A	LE1-D123N307	ILE1-D123N307	ALE1-D123N307	0.75kW	4-6A	LE1-D121U310
1.5kW	2.2kW	2.5 - 4A	LE1-D123N308	ILE1-D123N308	ALE1-D123N308	1.1kW	7-10A	LE1-D121U314
2.2kW	3kW	4 - 6A	LE1-D123N310	ILE1-D123N310	ALE1-D123N310	1.5kW	9-13A	LE1-D121U316
3kW	4kW	5.5 - 8A	LE1-D123N312	ILE1-D123N312	ALE1-D123N312	2.2kW	12-18A	LE1-D181U321
4kW	5.5kW	7 - 10A	LE1-D123N314	ILE1-D123N314	ALE1-D123N314	3.0kW	17-25A	LE1-D251U322
5.5kW	7.5kW	9 - 13A	LE1-D123N316	ILE1-D123N316	ALE1-D123N316	New wide range coil voltages Select voltage code when ordering U 240V (170-280V) N 415V (352-465V) SF 550V (465-605V) Ideal for agricultural applications to avoid nuisance dropout due to voltage fluctuations. LE1 in plastic enclosure BE1 in metal enclosure		
7.5kW	11kW	12 - 18A	LE1-D183N321	ILE1-D183N321	ALE1-D183N321			
11kW	15kW	17 - 25A	LE1-D253N322	ILE1-D253N322	ALE1-D253N322			
15kW	18.5kW	23 - 32A	BE1-T3235N353	-	-			
18.5kW	22kW	30 - 40A	BE1-T4035N355	-	-			
22kW	30kW	37 - 50A	BE1-T5036N357	-	-			
30kW	37kW	48 - 65A	BE1-T6535N361	-	-			
37kW	45kW	63 - 80A	BE1-T8035N363	-	-			
45kW	55kW	80 - 93A	BE1-T9535N363	-	-			

DOL Starters without Overload

Code	400V	525V
LE1-D123*	5.5kW	7.5kW
LE1-D183*	7.5kW	11kW
LE1-D253*	11kW	15kW
LE1-D323*	15kW	18.5kW

Coil Voltage:

*SF 550V (465-605V)

*U 240V (170-280V)

*N 415V (352-465V)

Accessories

Code	Description	Size (mm) H x W x D
LE1-D12	Enclosure c/w push buttons up to 7.5kW	165 x 88 x 139
LE1-D18	Enclosure c/w push buttons for 11kW	165 x 88 x 139
LE1-D25	Enclosure c/w push buttons for 15kW	185 x 96 x 157
LE1-D32	Enclosure c/w push buttons for 18.5kW	200 x 110 x 144
BE1-T40	Steel Enclosure c/w push buttons for 18-24kW	265 x 190 x 176
LA9-D09906	Start switch - Up to 7.5kW	-
LE1-DSBG	Green Start Button	-
LE1-DSBR	Red Stop Button	-



BE1-T40

DOL STARTERS & DOL REVERSING STARTERS

For Standard Enclosure sizes, check datasheet on ACDC website



Steel Enclosed shown with isolator & ammeter

Note: When requesting a price or when ordering a starter with optional extra from list below, please order optional extra as a separate line.
Order example:

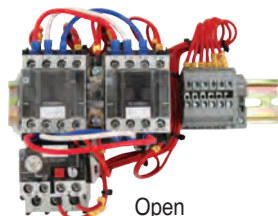
1) 4kW, 400V, with Isolator, Ammeter, Hour Meter, Phase Failure monitor, Steel enclosure, 240V coil.
Item 1: **ELC009/IS/AM/S U**
Item 2: **EFS05**
Item 3: **EFS18**

DOL Starters - Optional extras: Isolator, Ammeter and choice of **IP45** Steel Enclosure or **IP45** Polycarbonate Enclosure. Starters can be customised by adding items from the **Optional Extras** table below.

Code	Motor kW @ 400V	Motor kW @ 550V	Overload Range	With Circuit Breaker	With Isolator	With Ammeter	Enclosure Material	Coil Voltage
ELC009A	0.37kW	0.75kW	1-1.6A	/CB	/IS	/AM	/P or /S	B = 24V
ELC009B	0.55-0.75kW	1.5kW	1.6-2.5A	/CB	/IS	/AM	/P or /S	
ELC009C	1.1-1.5kW	2.5kW	2.5-4A	/CB	/IS	/AM	/P or /S	
ELC009D	2.2kW	3kW	4-6A	/CB	/IS	/AM	/P or /S	BT* = 24V
ELC009E	3.0kW	4kW	5.5-8A	/CB	/IS	/AM	/P or /S	E = 48V
ELC009	4kW	5.5kW	7-10A	/CB	/IS	/AM	/S or /P	F = 110V
ELC012	5.5kW	7.5kW	9-13A	/CB	/IS	/AM	/S or /P	FT* = 110V
ELC018	7.5kW	11kW	12-18A	/CB	/IS	/AM	/S or /P	
ELC025	11kW	15kW	17-25A	/CB	/IS	/AM	/S or /P	U = 240V
ELC032	15kW	18.5kW	23-32A	/CB	/IS	/AM	/S or /P	UT* = 240V
ELC040	18.5kW	22kW	30-40A	/CB	/IS	/AM	/S	N = 415V
ELC050	22kW	30kW	37-50A	/CB	/IS	/AM	/S	
ELC065	30kW	37kW	48-65A	/CB	/IS	/AM	/S	SF = 550V
ELC080	37kW	45kW	63-80A	/CB	/IS	/AM	/S	
ELC095	45kW	55kW	80-93A	/CB	/IS	/AM	/S	B = 24V
ELC115	55kW	75kW	100-160A	/CB	/IS	/AM	/S	
ELC150	75kW	90kW	100-160A	/CB	/IS	/AM	/S	F = 110V
ELC185	90kW	110kW	125-200A	/CB	/IS	/AM	/S	FT* = 110V
ELC225	110kW	132kW	160-250A	/CB	/IS	/AM	/S	P = 230V
ELC265	132kW	160kW	200-315	/CB	/IS	/AM	/S	PT* = 230V
ELC330	160kW	220kW	250-400A	/CB	/IS	/AM	/S	V = 400V
ELC400	220kW	275kW	315-500A	/CB	/IS	/AM	/S	SF = 550V

* Starter c/w Control Transformer. To specify Control Transformer primary voltage add: 4 (400V), 5 (550V).

DOL Reversing Starters - Complete with mechanical and electrical interlocks and thermal overload relay. Steel Enclosure **IP65** or Polycarbonate Enclosure **IP56**. Enclosed starters can be customised by adding items from **Optional Extras** table below.



Open



Plastic Enclosed

Open Starter	Enclosed Starter	Motor kW @ 400VAC	Motor kW @ 550VAC	Overload Range	Standard Options		Enclosure Material	Coil Voltage
					Isolator	Ammeter		
RC009A	ERC009A	0.37kW	0.55kW	1-1.6A	/IS	/AM	/P	B = 24V
RC009B	ERC009B	0.55-0.75kW	1.5kW	1.6-2.5A	/IS	/AM	/P	
RC009C	ERC009C	1.1-1.5kW	2.2kW	2.5-4A	/IS	/AM	/P	
RC009D	ERC009D	2.2kW	3kW	4-6A	/IS	/AM	/P	BT* = 24V
RC009E	ERC009E	3kW	4kW	5.5-8A	/IS	/AM	/P	
RC009	ERC009	4kW	5.5kW	7-10A	/IS	/AM	/P	F = 110V
RC012	ERC012	5.5kW	7.5kW	9-13A	/IS	/AM	/P	FT* = 110V
RC018	ERC018	7.5kW	11kW	12-18A	/IS	/AM	/P	U = 240V
RC025	ERC025	11kW	15kW	17-25A	/IS	/AM	/S	
RC032	ERC032	15kW	18.5kW	23-32A	/IS	/AM	/S	UT* = 240V
RC40	ERC40	18.5kW	22kW	30-40A	/IS	/AM	/S	N = 415V
RC50	ERC50	22kW	30kW	37-50A	/IS	/AM	/S	
RC65	ERC65	30kW	37kW	48-65A	/IS	/AM	/S	SF = 550V
RC80	ERC80	37kW	45kW	63-80A	/IS	/AM	/S	

* Starter c/w Control Transformer. To specify Control Transformer primary voltage add: 4 (400V), 5 (550V).

Optional Extras - for Enclosed DOL Starters **ELC** Series & Reversing Starters **ERC** Series

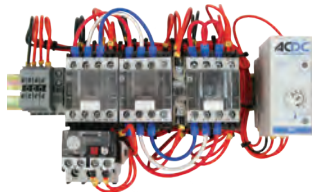
Code	Description	Code	Description
EFS01	Ammeter selector switch Up to 18.5kW	EFS11*	Surge Protection - 3-phase+N, 40kA
EFS02	Ammeter selector switch 22kW+	EFS12	Emergency Stop
EFS03	Voltmeter 72x72, c/w fuses (IP45)	EFS13	Man/Off/Auto selector
EFS04	Voltmeter selector switch	EFS14	Man/Off/Auto sel + 24VAC field circuit
EFS05	Running Hour Meter 48x48	EFS15	Pilot light - Run - Green
EFS07	Surge Protection - 3-phase, 5kA	EFS16	Pilot Light - Trip - Amber
EFS08	Surge Protection - 3-phase+N, 5kA	EFS17	Pilot Light - Power On - Red
EFS10*	Surge Protection - 3-phase, 40kA	EFS18	Phase Failure Relay

*Add optional brand:
D - DEHN, S - SALTEK

Note:
The selection of optional extras may impact on the enclosure size.
For accurate quotation please contact our panel shop.

STAR-DELTA STARTERS

Star-Delta Starters - Complete with mechanical and electrical interlocks, thermal overload relay and electronic timer. Steel enclosure **IP45** or Polycarbonate Enclosure **IP45**. Enclosed starters can be customised by adding items from the **Optional Extras** table shown below. Control fuses fitted on enclosed starters $\geq 5.5\text{kW}$.



Open Type



EDC-Type - Plastic Enclosed



EDC-Type - Steel Enclosed

Open Starter	Enclosed Starter	Motor kW @400VAC	Motor kW @550VAC	Overload Range	Standard Options			Encl. Material*	Coil Voltage
					Circuit Breaker	Isolator	Ammeter		
DC009A	EDC009A	4kW	5.5kW	4-6A	/CB	/IS	/AM	/P or /S	B = 24V
DC009B	EDC009B	5.5kW	7.5kW	5.5-8A	/CB	/IS	/AM	/P or /S	BT* = 24V
DC009	EDC009	7.5kW	11kW	7-10A	/CB	/IS	/AM	/P or /S	F = 110V
DC012	EDC012	11kW	15kW	9-13A	/CB	/IS	/AM	/P or /S	F = 110V
DC018	EDC018	15kW	18.5kW	12-18A	/CB	/IS	/AM	/P or /S	FT* = 110V
DC025	EDC025	18.5kW	22kW	17-25A	/CB	/IS	/AM	/P or /S	U = 240V
DC032	EDC032	22kW	30kW	23-32A	/CB	/IS	/AM	/P or /S	U = 240V
DC038	EDC038	30kW	37kW	28-36A	/CB	/IS	/AM	/P or /S	UT* = 240V
DC040A	EDC040A	37kW	45kW	37-50A	/CB	/IS	/AM	/S	N = 415V
DC050	EDC050	45kW	55kW	37-50A	/CB	/IS	/AM	/S	N = 415V
DC065	EDC065	55kW	75kW	48-65	/CB	-	/AM	/S	SF = 550V
DC080	EDC080	75kW	90kW	63-80A	/CB	/IS	/AM	/S	SF = 550V
DC095	EDC095	90kW	110kW	80-93A	/CB	/IS	/AM	/S	SF = 550V
DC115	EDC115	110kW	132kW	100-160A	/CB	-	/AM	/S	B = 24V
DC150	EDC150	132kW	160kW	100-160A	/CB	/IS	/AM	/S	BT* = 24V
DC185	EDC185	160kW	200kW	125-200A	/CB	/IS	/AM	/S	F = 110V
DC225	EDC225	220kW	250kW	160-250A	/CB	/IS	/AM	/S	FT* = 110V
DC265	EDC265	250kW	315kW	200-315A	/CB	/IS	/AM	/S	P = 230V
DC330	EDC330	315kW	400kW	250-400A	/CB	-	/AM	/S	PT* = 230V
DC400	EDC400	375kW	450kW	315-500A	/CB	/IS	/AM	/S	V = 400V
									SF = 550V

* Change /P (Plastic) or /S (Steel) if required. Enclosed Dimensions shown are for standard option.

* Starter c/w Control Transformer. To specify Control Transformer primary voltage add: 4 (400V), 5 (550V).

Note: The selection of optional extras may impact the enclosure size. For accurate quotation contact our panel shop.

Note: When requesting a price or when ordering a starter with optional extras, order the optional extra as a separate line. Order example: 1) 4kW, 400V, with Isolator, Ammeter, Hour Meter, Phase Failure monitor, Steel enclosure, 240V coil.

Item 1: **EDC009/IS/AM/S U** Item 2: **EFS05** Item 3: **EFS18**

For Standard Enclosure Size visit the ACDC website.

WITH PFC



Note: Star-Delta starters with power factor correction are only available in ventilated steel enclosures. Compensation is calculated for 4 pole motors only, to meet or exceed 0.95 PF.

Star-Delta with Static Power Factor Correction (PFC) IP42

Complete with isolator, ammeter, mechanical and electrical interlocks, thermal overload relay, 2 x electronic timers, cooling fans, HRC control fuses, capacitor switching contactor and 3PH capacitor. Starters can be customised by adding items from the **Optional Extras** table shown below.

Code	Motor Kw @400VAC	Overload Range	Compensation @400V	Coil Voltage	Standard Encl. Size L x W x H
EDCP018	15kW	12 - 18A	4 kVAr	F = 110V	800 x 600 x 320
EDCP025	18.5kW	17 - 25A	6 kVAr		800 x 600 x 320
EDCP032	22kW	23 - 32A	8,5 kVAr		800 x 600 x 320
EDCP038	30kW	28 - 36A	10,5 kVAr	U = 240V	800 x 600 x 320
EDCP040A	37kW	37 - 50A	13 kVAr		800 x 600 x 320
EDCP050	45kW	37 - 50A	13 kVAr		800 x 600 x 320
EDCP065	55kW	48 - 65A	17 kVAr	N = 415V	800 x 600 x 320
EDCP080	75kW	63 - 80A	22 kVAr		800 x 600 x 320
EDCP095	90kW	80 - 93A	26 kVAr		1000 x 800 x 320
EDCP115	110kW	100 - 160A	29 kVAr	F = 110V P = 230V V = 400V	1200 x 800 x 320
EDCP150	132kW	100 - 160A	32 kVAr		1200 x 800 x 320

Optional Extras - for Enclosed Starters

*Add optional brand: **D** - DEHN, **S** - SALTEK

Note: The selection of optional extras may impact on the enclosure size. For accurate quotation please contact our panel shop.

Code	Description	Code	Description
EFS01	Ammeter selector switch Up to 18.5kW	EFS11*	Surge Protection - 3-phase+N, 40kA
EFS02	Ammeter selector switch 22kW+	EFS12	Emergency Stop Pushbutton
EFS03	Voltmeter 72x72, c/w fuses (IP45)	EFS13	Man/Off/Auto selector
EFS04	Voltmeter selector switch	EFS14	Man/Off/Auto sel + 24VAC field circuit
EFS05	Running Hour Meter 48x48	EFS15	LED Pilot Light - Run - Green
EFS07	Surge Protection - 3-phase, 5kA	EFS16	LED Pilot Light - Trip - Amber
EFS08	Surge Protection - 3-phase + N, 5kA	EFS17	LED Pilot Light - Power On - Red
EFS10*	Surge Protection - 3-phase, 40kA	EFS18	Phase Failure Relay SPR3

VACUUM CONTACTORS

Vacuum Contactors - 3P



Code	Rated Current	Rated Voltage	Rated Making Capacity	Rated Breaking Capacity	Auxiliary Contacts	Mechanical Life	Electrical Life	Pick-Up Power (W)	Hold Power (W)
CKJ11-160/1.5*	160A	1.5kV	1600A	1280A	3NO/1NC	1 000 000	60 000	265W	30W
CKJ11-250/1.5*	250A	1.5kV	2500A	2000A	3NO/1NC	1 000 000	60 000	265W	30W
CKJ11-400/1.5*	400A	1.5kV	4000A	3200A	4NO/1NC	1 000 000	60 000	342W	38W
CKJ11-630/3.6*	630A	3.6kV	6300A	5000A	4NO/2NC	1 000 000	60 000	400W	45W

*Add Control Voltage to code: **110V, 230V, 400V** - All sizes supplied with auxiliary contacts

2 POLE CONTACTORS

2 Pole Contactors - Suitable for air conditioners



TCDP

Code	Rating A (AC1)	No. of Poles	Terminals
TCDP202*	20A	2 N/O	Screw/PushOn
TCDP302*	30A	2 N/O	Screw/PushOn
TCDP402*	40A	2 N/O	Screw/PushOn

*Add coil voltage: **B** = 24VAC, **F** = 110VAC, **M** = 240VAC, **Q** = 400VAC

Heavy Duty Relay

G7LB-2A*	25A	2 N/O	Clamp
----------	-----	-------	-------

*Add coil voltage: **B** = 24VAC, **F** = 110VAC, **M** = 230VAC



G7LB-2A

MINI CONTACTORS



Code	Auxiliary Contacts	Max ratings for application of 3-phase motors - AC3		Max ratings for application on resistive heating loads - AC1
FDC-K0910*	N/O	9A@400V	4kW@400V	20A@400V
FDC-K0901*	N/C	9A@400V	4kW@400V	20A@400V

*Add coil voltage: **B** = 24VAC, **F** = 110VAC, **M** = 230VAC, **Q** = 400VAC

Spare Coil Code FDC-D2* *Add voltage: **B** = 24VAC, **F** = 110VAC, **M** = 230VAC, **Q** = 400VAC

MOTOR START PUSH BUTTONS

Direct Motor Starters for Three Phase Motors

Rated Volts: 550VAC

Cable Entry: 20mm

IP42



IP42



Code	SP-315	SP-330	SY-315	SY-330
Rated Current	15A	30A	15A	30A
Rated Power	0-2.2kW	0-3.7kW	0-2.2kW	0-3.7kW
Mounting	Surface	Surface	Flush	Flush
Material	Steel	Steel	Steel	Steel

Single Phase

Three Phase



Code	SDZ-6A	SDZ-6B	SDZ-6E	SDZ-08B	SDZ08-8
Rated Current	15A	15A	15A	15A	12A (AC-3)
Rated Power	2.2kW (AC-3)	2.2kW (AC-3)	2.2kW (AC-3)	2.2kW (AC-3)	3PH 400VAC
Cutout Size	50 x 23mm	50 x 23mm	46 x 22mm	Surface Mount	Surface Mount

• Power Failure Protection

• Under Voltage Protection

NEW

MANUAL MOTOR STARTERS

Standard:
IEC/EN 60947-2
IEC60947-4-1
For dimensions, check the
datasheet on our ACDC website

CS2 Motor Protection Circuit Breaker - Rated Voltage: 690VAC



CS2-32 Rotary



CS2-32 Push Button



CS2-80P

Code Rotary	Code Push Buttons	Rated Current	Ultimate Breaking Capacity Icu		Short-Circuit Breaking Capacity Ics		Rated Motor Power	
			@ 415 VAC	@ 690 VAC	@ 415 VAC	@ 690 VAC	@ 415 VAC	@ 690 VAC
CS2-3201R	CS2-3201P	0,1-0,16A	100kA	100kA	100kA	100kA	-	-
CS2-3202R	CS2-3202P	0,16-0,25A	100kA	100kA	100kA	100kA	0,06kW	-
CS2-3203R	CS2-3203P	0,25-0,4A	100kA	100kA	100kA	100kA	0,09kW	-
CS2-3204R	CS2-3204P	0,4-0,63A	100kA	100kA	100kA	100kA	0,18kW	0,37kW
CS2-3205R	CS2-3205P	0,63-1A	100kA	100kA	100kA	100kA	0,37kW	0,55kW
CS2-3206R	CS2-3206P	1-1,6A	100kA	100kA	100kA	100kA	0,55kW	1,1kW
CS2-3207R	CS2-3207P	1,6-2,5A	100kA	3kA	100kA	2,25kA	0,75kW	1,5kW
CS2-3208R	CS2-3208P	2,5-4A	100kA	3kA	100kA	2,25kA	1,5kW	2,2kW
CS2-3210R	CS2-3210P	4-6,3A	100kA	3kA	100kA	2,25kA	2,2kW	4kW
CS2-3214R	CS2-3214P	6,3-10A	100kA	3kA	100kA	2,25kA	4kW	7,5kW
CS2-3216R	CS2-3216P	9-14A	15kA	3kA	7,5kA	2,25kA	5,5kW	11kW
CS2-3220R	CS2-3220P	13-18A	15kA	3kA	7,5kA	2,25kA	7,5kW	15kW
CS2-3221R	CS2-3221P	17-23A	15kA	3kA	6kA	2,25kA	9kW	18,5kW
CS2-3222R	CS2-3222P	20-25A	15kA	3kA	6kA	2,25kA	11kW	15kW
CS2-3232R	CS2-3232P	24-32A	10kA	3kA	5kA	2,25kA	15kW	22kW
-	CS2-8025P	16-25A	15kA	2kA	7,5kA	2kA	11kW	18,5kW
-	CS2-8040P	25-40A	15kA	2kA	7,5kA	2kA	18,5kW	30kW
-	CS2-8063P	40-63A	15kA	2kA	7,5kA	2kA	30kW	45kW
-	CS2-8080P	56-80A	15kA	2kA	7,5kA	2kA	37kW	55kW

Accessories



CS2-UV CS2-SH CS2-FA



CS2-AN CS2-AU



CS2-AE



CS2-MC

Code	Description	Frame Size
Undervoltage Trip (UVT) - Operating range : 35-70% of rated voltage		
CS2-UV110	Rated voltage: 110-115VAC 50HZ	CS2-32
CS2-UV220	Rated voltage: 220-240VAC 50HZ	CS2-32
CS2-UV415	Rated voltage: 415VAC 50HZ	CS2-32
Shunt Trip - Operating range : 70-110% of rated voltage		
CS2-SH110	Rated voltage: 110-115VAC 50HZ	CS2-32
CS2-SH220	Rated voltage: 220-240VAC 50HZ	CS2-32
CS2-SH415	Rated voltage: 415VAC 50HZ	CS2-32
Alarm + Auxiliary Contact		
CS2-FA0110	Aux: 1NC (6A) Alarm: 1NO(2.5A)	CS2-32
CS2-FA0101	Aux: 1NC (6A) Alarm: 1NC(2.5A)	CS2-32
CS2-FA1010	Aux: 1NO (6A) Alarm: 1NO(2.5A)	CS2-32
CS2-FA1001	Aux: 1NO (6A) Alarm: 1NC(2.5A)	CS2-32
Auxiliary contacts		
CS2-AE20	Front mount 2NO(2.5A)	CS2-32
CS2-AE11	Front mount 1NO+1NC(2.5A)	CS2-32
CS2-AN20	Side mount 2NO(2.5A)	CS2-32
CS2-AN11	Side mount 1NO+1NC(2.5A)	CS2-32
CS2-AU20	Side mount 2NO(6A)	CS2-80
CS2-AU11	Side mount 1NO+1NC(6A)	CS2-80
Enclosure		
CS2-MC	Surface mounting enclosure IP55	

MOTOR PROTECTION CIRCUIT BREAKER MPCB

Motor Protection Circuit Breaker - 32A Frame - High Breaking Capacity



Code	Rated Operational Current I_n [A]	Thermal Release Adjustment Range [A]	Magnetic Release Operating Current [A]	400/415V		3-phase [kW] (50/60Hz)			
				I_{cu} [kA]	I_{cs} [kA]	230V	400V	500V	690V
TCMS-32H 0.16	0.16	0.1-0.16	2.1	100	100	-	0.02	-	-
TCMS-32H 0.25	0.25	0.16-0.25	3.3	100	100	0.03	0.06	-	-
TCMS-32H 0.4	0.4	0.25-0.4	5.2	100	100	0.06	0.09	-	-
TCMS-32H 0.63	0.63	0.4-0.63	8.2	100	100	0.09	0.12	0.25	0.25
TCMS-32H 1	1	0.63-1.0	13	100	100	0.12	0.25	0.37	0.55
TCMS-32H 1.6	1.6	1.0-1.6	20.8	100	100	0.25	0.55	0.55/0.75	1.1
TCMS-32H 2.5	2.5	1.6-2.5	32.5	100	100	0.37	0.75	1.1	1.5
TCMS-32H 4	4	2.5-4.0	52	100	100	0.75	1.5	1.5/2.2	3
TCMS-32H 6	6	4-6	78	100	100	1.5	2.2	3	4
TCMS-32H 8	8	5-8	104	100	100	1.5	3	3.7	5.5
TCMS-32H 10	10	6-10	130	100	100	3	4	4/5.5	7.5
TCMS-32H 13	13	9-13	169	100	100	3	5.5	7.5	11
TCMS-32H 17	17	11-17	221	50	38	4	7.5	11	11
TCMS-32H 22	22	14-22	286	50	38	4	7.5	11	15
TCMS-32H 26	26	18-26	338	50	38	5.5	11	15	18.5
TCMS-32H 32	32	22-32	416	50	38	7.5	15	18.5	22

Motor Protection Circuit Breaker - 63A Frame - High Breaking Capacity

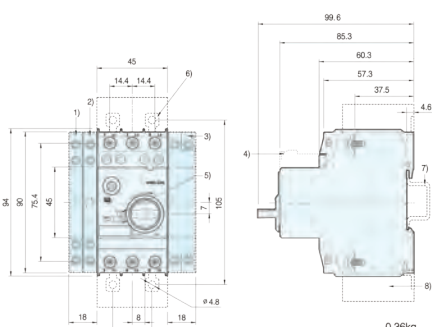


Code	Rated Operational Current I_n [A]	Thermal Release Adjustment Range [A]	Magnetic Release Operating Current [A]	400/415V		3-phase [kW] (50/60Hz)			
				I_{cu} [kA]	I_{cs} [kA]	230V	400V	500V	690V
TCMS-63H 32	32	22-32	416	50	50	7.5	15	18.5	22
TCMS-63H 40	40	28-40	520	50	50	7.5	18.5	22	30
TCMS-63H 50	50	34-50	650	50	50	11	22	30	45
TCMS-63H 63	63	45-63	819	50	50	15	30	37	55

Motor Protection Circuit Breaker - 100A Frame - High Breaking Capacity

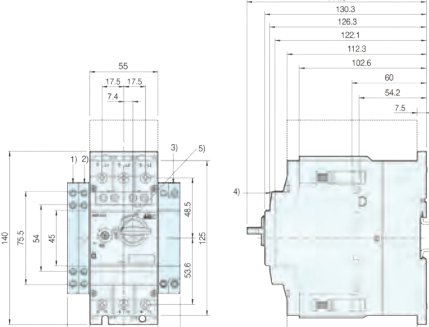


Code	Rated Operational Current I_n [A]	Thermal Release Adjustment Range [A]	Magnetic Release Operating Current [A]	400/415V		3-phase [kW] (50/60Hz)			
				I_{cu} [kA]	I_{cs} [kA]	230V	400V	500V	690V
TCMS-100H 63	63	45-63	819	100	50	15	30	37	55
TCMS-100H 75	75	55-75	975	100	50	22	37	45	63
TCMS-100H 90	90	70-90	1170	100	50	30	45	55	75
TCMS-100H 100	100	80-100	1300	100	50	30	45	63	90

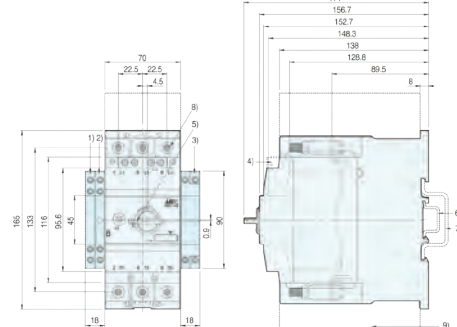


TCMS-32H

0.36kg



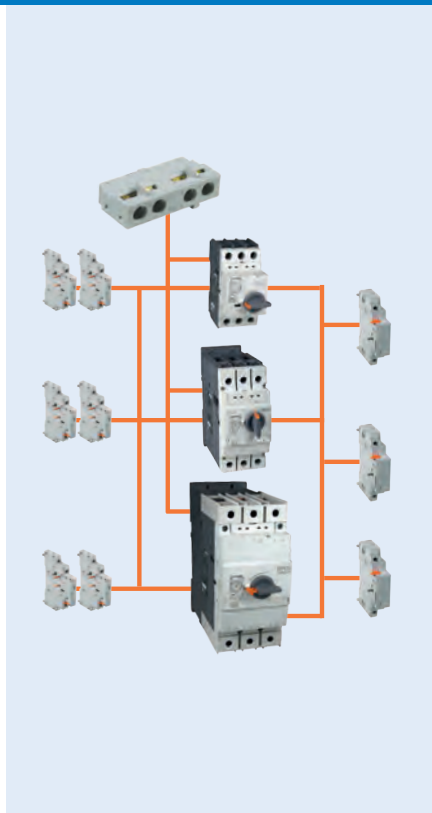
TCMS-63H



TCMS-100H

2.2kg

MOTOR PROTECTION CIRCUIT BREAKER MPCB



Accessories

Code	Description
------	-------------

Auxiliary Contacts

- TFX Front mounting Auxiliary contacts - One module per MPCB
- TLX Left side mounting Auxiliary contacts - One module per MPCB
- TLX modules can be stacked on top of TLA and TLAM alarm contacts

TFX-11 Aux Switch for MPCB front mounting - 1NO1NC

TFX-20 Aux Switch for MPCB front mounting - 2NO

TFX-02 Aux Switch for MPCB front mounting - 2NC

TLX-11 Aux Switch for MPCB left side mounting - 1NO1NC

TLX-20 Aux Switch for MPCB left side mounting - 2NO

TLX-02 Aux Switch for MPCB left side mounting - 2NC

Alarm Contacts

- Alarm contacts must be installed first when being used with TLX module
- TLA and TLAM modules cannot be stacked together
- Refer to diagram on left for maximum configuration

TLA-11* Trip Alarm Switch for MPCB left side mounting - 1NO1NC

TLA-20* Trip Alarm Switch for MPCB left side mounting - 2NO

TLA-02* Trip Alarm Switch for MPCB left side mounting - 2NC

TLAM-11 Magnetic Trip Alarm Switch for MPCB left side mounting - 1NO1NC

TLAM-20 Magnetic Trip Alarm Switch for MPCB left side mounting - 2NO

TLAM-02 Magnetic Trip Alarm Switch for MPCB left side mounting - 2NC

* Add -63 to code for 63/100A frame

Shunt Release

- Right side mounting
- One right side mounting module per MPCB

TRS-24V 24V ~ 28V 50Hz

TRS-110V 110V ~ 127V 50Hz

TRS-230V 220V ~ 230V 50Hz

TRS-400V 415V ~ 440V 50Hz

Undervoltage Release

- Right side mounting
- One right side mounting module per MPCB

TRU-24V 24V ~ 28V 50Hz

TRU-110V 110V ~ 127V 50Hz

TRU-230V 220V ~ 230V 50Hz

TRU-400V 415V ~ 440V 50Hz

Undervoltage Release with Auxiliary

- Right side mounting
- Includes 2 NO Aux
- One right side mounting module per MPCB

TRUX-24V 24V ~ 28V 50Hz

TRUX-110V 110V ~ 127V 50Hz

TRUX-230V 220V ~ 230V 50Hz

TRUX-400V 415V ~ 440V 50Hz

Mounting Accessories

TIB100 Insulation barrier for TCMS-100

EPH32-65S IP65 enclosure to accommodate TCMS-32

TDA32HA* Direct adaptor used to connect TCMS-32 directly with a mini contactor

TPIL32 Mounting lug for TCMS-32

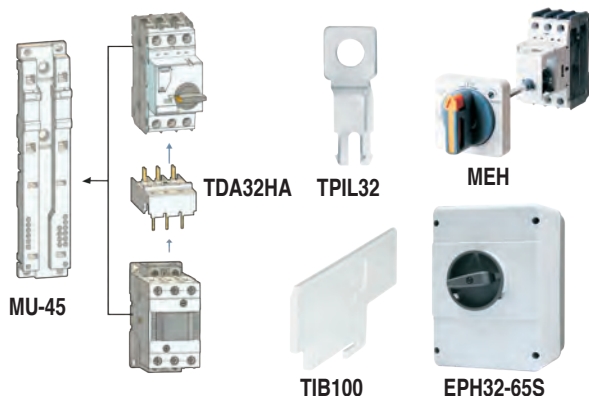
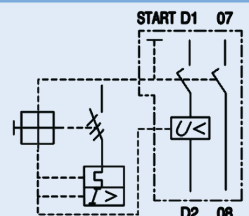
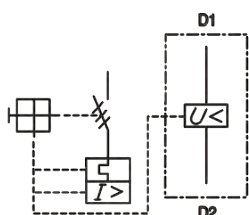
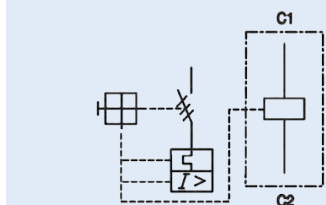
MU45* Mounting unit to connect TCMS-32 with a mini contactor

MEH32-115 Pad-lockable vari-depth rotary handle for use with TCMS-32

MEH63-115 Pad-lockable vari-depth rotary handle for use with TCMS-63

MEH100-115 Pad-lockable vari-depth rotary handle for use with TCMS-100

*Items used for Type 2 co-ordination (See Chart in Technical Section).



AC CONTACTORS & OVERLOADS

3 & 4 Pole Contactors AC Coil

with Front Dust Cover



All ratings are for ambient temperature upto 40°C and 2000m above sea level.

D09-D95 supplied with wide range coils



Code* 1N/O Aux	TC1-	D0910	D1210	D1810	D2210	D2510	D3210	D3810	D40	D50	D65	D80	D95
Code* 1N/C Aux	TC1-	D0901	D1201	D1801	D2201	D2501	D3201	D3801	1NO+1NC	1NO+1NC	1NO+1NC	1NO+1NC	1NO+1NC
Code* 4 Pole Contactors	TC1-	D09004	D12004	D18004	-	D25004	-	-	D40004	D50004	D65004	D80004	D95004
Code* 4 Pole 2NO/2NC	TC1-	D09008	D12008	-	-	D25008	-	-	D40008	D50008	D65008	D80008	D95008
Rated operating voltage	AC	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
AC1 Duty Resistive Load		25A	25A	32A	32A	40A	50A	50A	60A	80A	80A	125A	125A
AC3 Duty Current rating	400V	9A	12A	18A	22A	25A	32A	38A	40A	50A	65A	80A	95A
AC3 Duty Power rating	400V	4kW	5.5kW	7.5kW	11kW	11kW	15kW	18.5kW	18.5kW	22kW	30kW	37kW	45kW
	550V	5.5kW	7.5kW	11kW	12.5kW	15kW	18.5kW	18.5kW	22kW	30kW	37kW	45kW	55kW
	1000V	-	-	-	-	-	-	-	-	-	-	-	-
AC4 Duty 200K ops	400V	2.2kW	3.7kW	4kW	4.5kW	5.5kW	7.5kW	7.5kW	9kW	11kW	11kW	15kW	15kW
Star-Delta Power rating	400V	7.5kW	11kW	15kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW	75kW	90kW
	550V	7.5kW	11kW	18.5kW	18.5kW	22kW	37kW	37kW	45kW	55kW	75kW	90kW	110kW
Generator Set	400V	17kVA	17kVA	22kVA	22kVA	27kVA	34kVA	38kVA	42kVA	55kVA	55kVA	85kVA	85kVA
Electrical life (million ops)	AC3	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Power Dissipation/Pole	AC1	1.56W	1.56W	2.5W	2.5W	3.2W	5W	5W	5.4W	9.6W	6.4W	12.5W	12.5W
Coil Consumption Inrush/sealed	50Hz	60/7VA				90/7.5VA			200/20VA				
Cable Size required for AC 1 Duty	50/60Hz	4mm ²	4mm ²	6mm ²	6mm ²	10mm ²	10mm ²	10mm ²	16mm ²	25mm ²	25mm ²	35mm ²	35mm ²
Size H x W x D - 3 Pole	mm	74 x 45 x 80				84 x 56 x 93			127 x 75 x 114			127 x 85 x 125	
Mounting Rail	DIN	35mm				35mm			35/70mm			35/70mm	

Spare Coils

Code	TX1-D2*	TX1-D4*	TX1-D6*
Coil Voltages*			
J = 12V 50/60Hz (10.2-13.2V)			
B = 24V 50/60Hz (20.4-26.4V)			
E = 48V 50/60Hz (41-53V)			
F = 110V 50/60Hz (77-121V)			
U = 240V 50Hz (170-280V)			
N = 415V 50Hz (352-465V) S = 500V 50Hz (425-550V) SF = 550V 50Hz (467-605V)			

Thermal Overload Relays



Code	Range	kW@400V	Code	Range	Code	Range	kW@400V
TR2-D09303	0.25 - 0.40A	0.06-0.9kW*			TR2-D40353	23 - 32A	15kW
TR2-D09304	0.40 - 0.63A	0.12-0.18kW*			TR2-D40355	30 - 40A	18.5kW
TR2-D09305	0.63 - 1.00A	0.25-0.37kW*			TR2-D65357	37 - 50A	22kW
TR2-D09306	1.00 - 1.60A	0.55kW	TR2-D25322 (11kW@400V)	17 - 25A	TR2-D65359	48 - 65A	25 - 30kW
TR2-D09307	1.60 - 2.50A	0.75-1.1kW			TR2-D65361	55 - 70A	30 - 37kW
TR2-D09308	2.50 - 4.00A	1.5kW	TR2-D32353 (15kW@400V)	23 - 32A	TR2-D80363	63 - 80A	37kW
TR2-D09310	4.00 - 6.00A	2.2kW			TR2-D95365	80 - 93A	45kW
TR2-D09312	5.50 - 8.00A	3.0kW					
TR2-D09314	7.00 - 10.00A	4.0kW	TR2-D32355 (18.5kW@400V)	28 - 36A			
TR2-D12316	9.00 - 13.00A	5.5kW					
TR2-D18321	12.00 - 18.00A	7.5kW					

* Check Motor Rating Plate First

1000V CONTACTORS & OVERLOADS

World class
accreditation
UL508-17th edition
CSA22.2 No.14-95
CB Certification



LC1-FDP...

115A	150A	185A	225A	265A	330A	400A	500A	630A	780A*
Use same auxiliaries as TC1 contactors. Each contactor accepts up to 2 add-on units. Refer to page 3									
1154A	1504A	1854A	2254A	2654A	3304A	4004A	5004A	6304A	7804A*
-	-	-	-	-	-	-	-	-	-
1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V
200A	250A	275A	315A	350A	400A	500A	700A	1000A	1600A
115A	150A	185A	225A	265A	330A	400A	500A	630A	780A
55kW	75kW	90kW	110kW	132kW	160kW	200kW	250kW	335kW	400kW
75kW	90kW	110kW	129kW	160kW	200kW	257kW	355kW	400kW	450kW
65kW	75kW	100kW	100kW	147kW	160kW	185kW	335kW	450kW	450kW
18.5kW	22kW	40kW	45kW	55kW	63kW	75kW	80kW	100kW	110kW
110kW	132kW	160kW	200kW	250kW	315kW	375kW	-	-	-
132kW	160kW	220kW	250kW	315kW	375kW	425kW	-	-	-
135kVA	165kVA	185kVA	225kVA	240kVA	280kVA	350kVA	475kVA	680kVA	1100kVA
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	0.8
18W	25W	26W	-	39W	-	70W	88W	120W	250W
550/45VA	550/45VA	805/55VA	805/55VA	1200/95VA	700/10VA	1075/15VA	1100/18VA	1650/22VA	2100/50VA
50mm ²	70mm ²	95mm ²	Flexibar 24 x 4mm	Flexibar 24 x 4mm	Flexibar 24 x 4mm	Flexibar 24 x 5mm	Flexibar 24 x 5mm	Flexibar 24 x 10mm	Flexibar 50 x 5mm
162 x 164 x 173	174 x 169 x 185	197 x 169 x 185	203 x 202 x 207	206 x 206 x 223	206 x 213 x 226	238 x 233 x 238	304 x 309 x 260	434 x 702 x 250	

Chassis Mounted

* 2 x Coils - Coils to be Ordered Separately

AC Coils

Code	LX1-FF*	LX1-FG*	LX1-FH*	LX1-FJ*	LX1-FK*	LX1-FL*	LX1-FX*
------	---------	---------	---------	---------	---------	---------	---------

Coil Voltages*

B = 24V 50Hz (20.4-26.4V)
E = 48V 50Hz (41-53V)
F = 110V 50Hz (77-121V)
P = 230V 50Hz (195-253V)
V = 400V 50Hz (340-440V)
S = 500V 50Hz (425-550V)
SF = 550V 50Hz (467-605V)



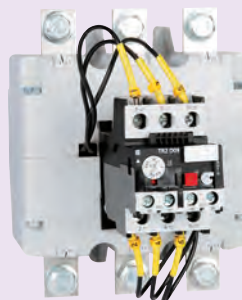
LX1 Coil

Overload Base Plate

DIN or Screw Mount



Code	To Fit Overload Sizes	
TA7-D0964	From	TR2-D09301
	To	TR2-D25322
TA7-D3264	From	TR2-D32353
	To	TR2-D32355
TA7-D4064	From	TR2-D40353
	To	TR2-D95365



Thermal Overload Relays

Internal CT's, Separate Mounting, 1000V Rated

Code	Range	Motor@400V
LR1-F(M)105	65 - 105A	37 - 55kW
LR1-F160	100 - 160A	75 - 90kW
LR1-F200	125 - 200A	90 - 110kW
LR1-F250	160 - 250A	110 - 132kW
LR1-F315	200 - 315A	132 - 160kW
LR1-F400	250 - 400A	160 - 220kW
LR1-F500	315 - 500A	200 - 250kW
LR1-F630	400 - 630A	250 - 375kW

Electronic Overload Relays

Internal CT's, Separate Mounting, 1000V Rated

Code	Range	Motor@400V
LR9-F5367	60-100A	90 - 110kW
LR9-F5369	90-150A	110 - 132kW
LR9-F5371	132-220A	132 - 160kW
LR9-F7375	200-330A	160 - 220kW
LR9-F7379	300-500A	200 - 250kW
LR9-F7381	380-630A	250 - 375kW

For more electronic overloads, see pages 6.21-6.25



CONTACTORS & CONTROL RELAYS

3 Pole Contactors DC Coils

D09-D80
supplied with coil



Code* 1N/O Aux	TP1-	D0910*	D1210*	D1810*	D2510*	D3210*	D4011*	D5011*	D6511*	D8011*
Code* 1N/C Aux	TP1-	D0901*	D1201*	D1801*	D2501*	D3201*	1NO+1NC	1NO+1NC	1NO+1NC	1NO+1NC
AC3 Rated Power @ 400V		4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW
Coil Consumption		9W	9W	9W	11W	11W	22W	22W	22W	22W
Mechanical Life (million ops)		30	30	30	25	25	20	20	20	20
Dimensions H x W x D mm		74 x 45 x 115			84 x 56 x 130		127 x 75 x 168		127 x 85 x 181	



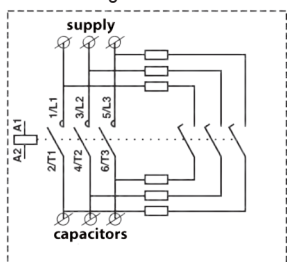
Spare Coils

Code	TX4-D2*	TX4-D4*	LX4-D40*	LX4-D80*
------	---------	---------	----------	----------

* Voltage DC JD = 12VDC BD = 24VDC ED = 48VDC FD = 110VDC MD = 220VDC

Contactors for 3 Phase PF Correction Capacitors

Internal diagram of Contactor



Conforms to AC6b
IEC 60947-4-1

D12K-D75K
supplied with coil



Code* 1N/O + 1N/C	TC1-	D12K11*	D16K11*	D20K11*	D25K11*	D33K12*	D40K12*	D60K12*	D75K12*
Code* 2N/C	TC1-	D12K02*	D16K02*	D20K02*	D25K02*	1NO+2NC	1NO+2NC	1NO+2NC	1NO+2NC
Rated operating voltage		690V	690V	690V	690V	690V	690V	690V	690V
Capacitor switching	400V	12.5kVAr	16.7kVAr	20kVAr	25kVAr	33.3kVAr	40kVAr	60kVAr	75kVAr

* Add Coil Voltage F = 110V 50/60Hz U = 240V 50Hz N = 415V 50Hz

Reversing Contactors (Wide range of AC coils)

AC Control Relays

DC Control Relays



Code	AC3 400V	Aux Contacts	Code	Contacts	Code	Contacts
TC2-D0901*	4kW	1N.C.	TCA2-DN22*	2N.O. + 2N.C.	TCA3-DN22*	2N.O. + 2N.C.
TC2-D1201*	5.5kW	1N.C.	TCA2-DN31*	3N.O. + 1N.C.	TCA3-DN31*	3N.O. + 1N.C.
TC2-D1801*	7.5kW	1N.C.	TCA2-DN40*	4N.O.	TCA3-DN40*	4N.O.
TC2-D2501*	11kW	1N.C.	Uc = 12-600V Ith = 10A Max ops per sec = 3 Mechanical life: 50Hz coil 20m ops 50/60Hz coil 30m ops		Uc = 12-600V Ith = 10A Max ops per sec = 3 Mechanical life: DC coil 30m ops	
TC2-D3201*	15kW	1N.C.				
TC2-D4011*	18.5kW	1N.O. + 1N.C.				
TC2-D5011*	22kW	1N.O. + 1N.C.				
TC2-D6511*	30kW	1N.O. + 1N.C.				
TC2-D8011*	37kW	1N.O. + 1N.C.				
TC2-D9511*	45kW	1N.O. + 1N.C.				

* Coil Voltage AC J = 12V 50Hz (9-32A only) B = 24V 50/60Hz E = 48V 50/60Hz F = 110V 50/60Hz
U = 240V 50Hz N = 415V 50Hz SF = 550V 50Hz V = 400V 50Hz P = 230V 50Hz S = 500V 50Hz

* Coil Voltage DC JD = 12VDC
BD = 24VDC ED = 48VDC
FD = 110VDC MD = 220VDC

ACCESSORIES



Auxiliaries - Top Mount

Fits directly onto all T & F range contactors & TCA2 Relays

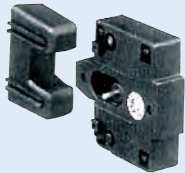
Code	Description
TA1-DN11	1N.O. + 1N.C.
TA1-DN02	2N.C.
TA1-DN20	2N.O.
TA1-DN22	2N.O. + 2N.C.
TA1-DN13	1N.O. + 3N.C.
TA1-DN31	3N.O. + 1N.C.
TA1-DN40	4N.O.
TA1-DN04	4N.C.



Auxiliaries - Side Mount

T Range Contactors from 9Amp to 38Amp frame sizes and TCA2 and TCA3 Relays only

Code	Description
TA8-DN11	1N.O. + 1N.C.
TA8-DN20	2N.O.



Horizontal Mechanical Interlocks

T Range only

Code	For use with Contactors
CA9-D10	TC1-D09 to D38 c/w 2N.C.
TA9-D09978	TC1-D09 to D38 & TCA2
TA9-D50978	TC1-D40 to D65
TA9-D80978	TC1-D80 to D95



Coil Suppressor

Code	For use with Contactors
TA9-AMOV980E	D09 to D95 24-48VAC/DC
TA9-AMOV980U	D09 to D95 110-240VAC/DC
TA9-RC980N	D09 to D95 380-440VAC



Pneumatic Timers

Fits directly onto all T & F Range Contactors & TCA2 Relays

Code	Description
TA2-DT2	Delay On 0-30sec
TA2-DT4	0-180sec
TA3-DR2	Delay Off 0-30sec
TA3-DR4	0-180sec
TA2-DS2	S/Delta 1-30sec*

*With 40ms pause between Star opening & Delta closing.



Mechanical Latching Block

Fitted with 230VAC release coil

Code	For use with Contactors
LA6-DK01 P	D09 to D32 contactors and TCA2 relays



Rev/S-D Power Kits - Set of 6

Code	For use with Contactors
TA9-D1269	TC1-D09 to D12
TA9-D1869	TC1-D18 & D22
TA9-D2569	TC1-D25
TA9-D3269	TC1-D32 & D38
TA9-D6569	TC1-D40 to D65
TA9-D8069	TC1-D80 to D95

F Range Accessories



Set of 6



F Range Contactor Size	Reversing/Star-Delta Busbar Kits	Star Point Bridge	Horizontal Mechanical Interlocks	Vertical Mechanical Interlocks	Contact Kits (No. of Poles)	ARC Chambers (No. of Poles)
115A	LA9-F115CL	LA9-F115SP	LA9-FF970	LA9-FF971	LA5-FF431-F115(3)	LA5-FDP11550(3)
150A	LA9-F150CL	LA9-F185SP	LA9-FF970	LA9-FF971	LA5-FF431-F150(3)	LA5-FDP15050(3)
185A	LA9-F185CL	LA9-F185SP	LA9-FG970	LA9-FG971	LA5-FG431-F185(3)	LA5-FDP18550(3)
225A	LA9-F225CL	LA9-F400SP	LA9-FG970	LA9-FG971	LA5-FG431-F225(3)	LA5-FDP22550(3)
265A	LA9-F265CL	LA9-F400SP	LA9-FJ970	LA9-FH971	LA5-FH431-F265(3)	LA5-FDP26550(3)
330A	LA9-F400CL	LA9-F400SP	LA9-FJ970	LA9-FH971	LA5-F400803-F330(3)	LA5-FDP33050(3)
400A	LA9-F400CL	LA9-F400SP	LA9-FJ970	LA9-FJ971	LA5-F400803-F400(3)	LA5-FDP40050(3)
500A	LA9-F500CL	LA9-F500SP	LA9-FJ970	LA9-FK971	LA5-F500803-F500(3)	LA5-FDP50050(3)
630A	LA9-F630CL	LA9-F630SP	LA9-FL970	LA9-FL971	LA5-F630803-F630(3)	LA5-FDP63050(3)
780A	-	-	-	LA9-FX970	LA5-F780801-F780(1)	LA5-FDP78050(1)

MINI 3-POLE CONTACTORS & OVERLOAD RELAYS



Electronic Timer



Coil Suppressor



Auxiliary Contact configurations

Current AC3@415V	6A	9A	12A	16A
Code AC Coil 1N/O Aux	TC1-M0610*	TC1-M0910*	TC1-M1210*	TC1-M1610*
Code AC Coil 1N/C Aux	TC1-M0601*	TC1-M0901*	TC1-M1201*	TC1-M1601*
Code DC Coil 1N/O Aux	TP1-M0610*	TP1-M0910*	TP1-M1210*	TP1-M1610*
Code DC Coil 1N/C Aux	TP1-M0601*	TP1-M0901*	TP1-M1201*	TP1-M1601*
Rated operating voltage	690VAC	690VAC	690VAC	690VAC
AC1 Duty Resistive Load	20A	20A	20A	20A
AC3 Duty Current rating	6A@380/440V	9A@380/440V	12A@380/440V	16A@380/440V
AC3 Duty Power rating	2.2kW@380/440V	4kW@380/440V	5.5kW@380/440V	7.5kW@380/440V
AC3 Duty Power rating	3kW@500/550V	3.7kW@500/550V	4kW@500/550V	5.5kW@500/550V
Coil Consumption Inrush/sealed	32/6VA	32/6VA	32/6VA	32/6VA
Mechanical life (million ops)	12	12	12	12
Electrical life (million ops)	1	1	1	1
Size H x W x D	58 x 45 x 57mm	58 x 45 x 57mm	58 x 45 x 57mm	58 x 45 x 57mm
Mounting Rail	DIN / Chassis	DIN / Chassis	DIN / Chassis	DIN / Chassis

*Add coil voltage to code: **B** = 24VAC **E** = 48VAC **F** = 110VAC **M** = 220VAC **N** = 415VAC

*DC Coil: **BD** = 24VDC **ED** = 48VAC



Aux & Coil Terminals Extended through overload
Ambient compensated -5°C to 40°C

Thermal Overload Relay for use with Mini Contactors - c/w 1NO+1NC Auxiliary Contacts

Code	Relay Range	KW @400V	Code	Relay Range	KW @400V
TR2-M0.14A	0.10-0.16A	-	TR2-M3.3A	2.5-4A	1.5kW
TR2-M0.21A	0.16-0.25A	-	TR2-M5A	4-6A	2.2kW
TR2-M0.33A	0.25-0.4A	0.06-0.9kW*	TR2-M6.5A	5-8A	3.kW
TR2-M0.52A	0.4-0.63A	0.12-0.15kW*	TR2-M7.5A	6-9A	4kW
TR2-M0.82A	0.63-1A	0.25kW-0.37kW*	TR2-M8.5A	7-10A	4.0kW
TR2-M1.3A	1-1.6A	0.55kW	TR2-M11A	9-13A	5.5kW
TR2-M2.1A	1.6-2.5A	0.75-1.1kW	TR2-M14A	12-16A	7.5kW

* Check Motor Rating Plate First

Automatic/Manual reset site selectable

Auxiliaries Top And Side Mount - lth = 10A

Code	Contact Configuration	Mounting	Code	Contact Configuration	Mounting
TA1-M20	2NO	Front	TA1-M22	2NO + 2NC	Front
TA1-M11	1NO + 1NC	Front	TA1-M13	1NO + 3NC	Front
TA1-M02	2NC	Front	TA1-M04	4NC	Front
TA1-M40	4NO	Front	TA8-M01	1NC	Side
TA1-M31	3NO + 1NC	Front	TA8-M10	1NO	Side

Accessories

Code	Description
TA9-M978	Mechanical Interlock for TC1-M06-M16 for horizontal mounting
TA9-M980-1	Coil Suppressor for 24-48VAC coils
TA9-M980-2	Coil Suppressor for 60-127VAC coils
TA9-M980-3	Coil Suppressor for 200-240VAC coils

AC Mini Control Relay - lth = 20AUc = 690VAC

Code	Contact Configuration
TCA2-M22*	2NO + 2NC
TCA2-M31*	3NO + 1NC
TCA2-M40*	4NO
TCA2-M13*	1NO + 3NC
TCA2-M04*	4NC

*Add coil voltage to code: **B** = 24VAC **E** = 48VAC **F** = 110VAC **M** = 220VAC **N** = 415VAC