

THREE PHASE MOTOR ENERGY CONTROL TECHNICAL SPECIFICATION

High Specification Electronic Soft Start with Motor Energy Control for Motors from 5.5 to 800kW at 400V.

- Compact and efficient design
- Adjustable initial pedestal voltage
- Kick start capability with adjustable time and level for stall-load, (high torque), starting
- Ramp-start time adjustable from 0.5 to 240 seconds
- Switchable ramp-down time
- Soft-stop for reducing water-hammer in pumping applications
- System Ready, Run / Fault and Top-of-Ramp relays fitted
- Full system status LED display
- PCB selectable voltage for 400/220V or 400/690V operation
- IP43 rated enclosure

Technical Data for Three Phase EnviroStart Motor Energy Control Units



MODEL	CONTINUOUS CURRENT @+20°C	kW @ 400V ¹	kW @ 690V ¹	kW @ 220V ¹	WEIGHT kg	FANS 110V or 240V	REPETITIVE STARTS Per Hour ²	POWER DISSIPATION Watts ³	HEIGHT/ WIDTH/DEPTH mm
400-TPMEC-5.5	12	5.5	7.5	2.2	10	N/A	15	18W	220/145/155
400-TPMEC-7	16	7.5	11	4	10	N/A	15	40W	220/145/155
400-TPMEC-11	23	11	15	5.5	10	N/A	15	140W	220/145/175
400-TPMEC-15	30	15	22	7.5	10	N/A	15	170W	220/145/175
400-TPMEC-22	45	22	30	11	15	N/A	15	100W	220/145/175
400-TPMEC-30	60	30	45	15	15	1x120mm	15	150W	330/145/175
400-TPMEC-37	75	37	55	22	15	1x120mm	15	170W	330/145/175
400-TPMEC-55	105	55	75	30	15	2x120mm	15	525W	430/254/280
400-TPMEC-63	120	63	90	37	15	2x120mm	15	640W	430/254/280
400-TPMEC-75	145	75	110	45	15	2x120mm	15	520W	430/254/280
400-TPMEC-90	170	90	132	55	16	2x120mm	12	490W	430/254/280
400-TPMEC-110	205	110	150	63	16	2x120mm	12	530W	430/254/280
400-TPMEC-132	255	132	186	75	28	3x120mm	12	650W	580/368/228
400-TPMEC-150	290	150	225	90	28	3x120mm	12	750W	580/368/228
400-TPMEC-186	340	186	260	110	28	3x120mm	12	1020W	580/368/228
400-TPMEC-225	410	225	315	132	28	3x120mm	12	1100W	580/368/228
400-TPMEC-260	475	260	375	150	45	3x150mm	12	1250W	720/462/253
400-TPMEC-315	580	315	450	186	45	3x150mm	12	1500W	720/462/253
400-TPMEC-375	670	375	500	215	45	3x150mm	12	2000W	720/462/253
400-TPMEC-450	800	450	630	260	120	2x220mm	12	2400W	910/650/340
400-TPMEC-500	900	500	750	315	120	2x220mm	10	3000W	910/650/340
400-TPMEC-630	1100	630	900	375	120	2x220mm	10	3500W	910/650/340
400-TPMEC-800	1400	800	1200	450	120	2x220mm	10	4000W	910/650/340

1. The kW ratings given are all derived from calculations based on a standard four pole motor operating at a nominal ambient of +20°C at sea level. All units should be selected based on the current rating of the motor to which it is to be fitted.

2. The indicated maximum repetitive start count is calculated based on maximum valid ambient of +40°C and with the motor running at full load current. Reducing either of these conditions will increase the start repetition capability of the unit.

3. Power dissipation is calculated for when the unit is running at full power output as defined by maximum continuous current at +20°C.

ELECTRICAL SPECIFICATION

SUPPLY VOLTAGE	220V or 400V selected on PCB (690V Units Available) -10% - +15%
FREQUENCY	50 or 60Hz selected on PCB.
START DUTY AT	5.5 to 37kW units
12 STARTS PER HOUR	4x unit rating in Amps for 5s 3x unit rating in Amps for 20s 2x unit rating in Amps for 40s 45 to 800kW units 5x unit rating in Amps for 5s 3x unit rating in Amps for 30s 2x unit rating in Amps for 60s
STARTS PER HOUR	12 evenly spaced starts per hour (average)

CONTROL SPECIFICATION

PEDESTAL RANGE	25 -100% of supply voltage (6% -100% DOL Torque)
RAMP UP TIME	0.5 - 240s
RAMP DOWN TIME	30s (Switchable)
CURRENT LIMIT RANGE	1.5 - 4.5 x FLC (Normal ramp hold time 30s)
CURRENT LIMIT TIME	Current limit time extendable to 240s
KICK START SETTING	Switchable
KICK START LEVEL	70% to 90% Volts
KICK START TIME	0.25 to 2s
POWER SWITCHING	Fully base-isolated thyristor Paks or independent Puks
CONTROL CIRCUITRY	High frequency MPU with full internal watch keeping and protocol management systems
CONTROL BOARD	Multi layer PCB with high voltage tracking and optional high RH environmental protection
CONTROL SUPPLY	Derived from three phase input or external supply, (user selectable)
STALLED ROTOR PROTECTION	Fault trip in case of detected extended asynchronous rotor speed
FAULT DETECTION	Shut Down and Lockout on: Phase Loss, Supply Loss, Motor Fault, Thyristor or PCB Fault, Asynchronous Motor Rotation
RESET	Onboard switch or through power off to ensure safe fault condition shut down
LED INDICATIONS	Ramp-up, Energy Save / Power On / Run / In Current Limit / Top of Ramp
ON PCB RELAYS	System Ready, Fault Condition / Run, (switch selectable), and Top of Ramp. - (All 2 pole changeover with two N/O and N/C contacts)
RELAY CONTACT RATING	2.2kVA, 250V AC maximum
MECHANICAL PROTECTION	IP43, NEMA 1 Sheet Metal Enclosure or High Impact ABS cover on Heatsink Backplane (Dependant on kW rating)

ENVIRONMENTAL SPECIFICATION

OPERATING TEMP	0°C - +40°C @ < 95%RH. (De-rate 20%/10°C above +40°C)
STORAGE TEMP	-10°C - +60°C
ALTITUDE	Nominal 2000m above sea level. De-rate Amps by 1%/100m above 2000m
EU DIRECTIVES	Meets all EMC and Low Voltage Directives. (including G5/4)
UL LISTING	Listed for US and Canadian use File E192379 (45 to 800kW units)

COOLING

COOLING	Naturally cooled isolated heatsink up to 22kW Fan cooled for 30kW and above (240/110V supply required for fans)
THERMAL CUT OUT	Automatically cuts out in event of over-temperature on heatsink

All details relate to units operating with a 400V synchronous three phase sinusoidal supply.



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