

For Operation in the Field, High Degree of Protection

ECOFAST motor starter

General data

More information

		3RK1 3 ECOFAST motor starters	
General data			
Mounting dimensions (W x H x D)			
• Reversing starters	mm	130 x 250 x 91	
• Reversing soft starters	mm	130 x 250 x 107	
Location		On the plant Near the motor Motor plugged on	
• Wall mounting			
• Mounting directly on the motor			
Mounting position		Any	
Degree of protection		IP65	
Protection class		1, supply with protective extra-low voltage	
Acc. to IEC 536 (VDE 0106-1)			
Cooling		Convection, no addition cooling necessary	
Weight			
• Reversing starters	kg	1.4	
• Reversing soft starters	kg	1.9	
Permissible ambient temperature			
• Operation	°C	-20 ... +40; condensation not permitted!	
- Reversing and reversing soft starters up to max. +55 °C		Over 40 °C: Reduction of I_e by 1.5 %/K	
• Storage/transport	°C	-40 ... +80	
Relative air humidity	%	5 ... 95; condensation not permitted!	
Installation altitude, max.		2000 m; above 1000 m: Reduction of I_e by 1 %/100 m	
Vibratory load		f = 5 ... 26 Hz; d = 0.75 mm: 10 cycles f = 26 ... 150 Hz; a = 2 g	
Shock		a = 150 m/s ² (15 g) with 11 ms, for every 3 shocks in all axes (=18)	
ESD			
• Air discharge, acc. to IEC 1000-4-2, degree of severity 3	kV	8	
• Contact discharge	kV	6	
Electromagnetic fields	V/m	10	
IEC 1000-4-3, degree of severity 3			
BURST			
• Control supply voltage, IEC 1000-4-4, degree of severity 3	kV/kHz	2/5	
• Data lines	kV/kHz	1/5	
• Process lines	kV/kHz	2/5	
Emitted interference, acc. to EN 55011		Limit value class A	
		Unswitched voltage 24 V DC (AS-i)	Switched voltage 24 V DC (AUX PWR)
Auxiliary power			
External auxiliary power			
• PROFIBUS DP	V DC	20.4 ... 28.8 standard power supply unit acc. to DIN 19240	
• AS-Interface	V DC	23.0 ... 31.5 (AS-i)	20.4 ... 28.8 standard power supply unit acc. to DIN 19240 (PELV must be grounded)
Power consumption			
• Typical, inputs not connected	mA	80 (PROFIBUS DP)	--
	mA	60 (AS-Interface)	--
• Typical, switching element (contactor) activated	mA	--	75
• Typical, switching element (contactor) deactivated	mA	--	15
• Typical, with Duo reversing soft starters	mA	--	110
Pole reversal protection		Yes	
Short-circuit protection/overload protection		Yes Multifuse 0.5 A, self-restoring fuse Reset by Power-OFF	
Undervoltage detection (USP)	V DC	< 17	
Voltage failure bridging	ms	≤ 20, (device is not affected)	
Insulation voltage	V DC	500 between the auxiliary voltages and PE	

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Digital inputs		
Input voltage	V DC	20.4 ... 28.8
Power consumption		
• Typical, per input	mA	7
Sensor supply	mA	max. 200
Brake output 400 V AC		
Voltage range	V AC	200 ... 460
• Tolerance	%	± 10
Current carrying capacity		
• AC-15	mA	500
Short-circuit protection		
Melting fuse, $I_{Cu} = 1$ kA	A	aM 1/500 V AC
Primary power		
Rated operational voltage	V AC	400
Tripping times acc. to IEC 60947-4-1 at 7.2 times I_e		
• Class 10	s	8, acc. to standard 4 ... 10
• Class 20	s	16
• Class 30	s	24
Rated insulation voltage acc. to IEC 60947-1	V AC	500
Rated impulse voltage acc. to IEC 60947-1	kV	4
Safe isolation between auxiliary and primary power	V AC	300
Frequency	Hz	50 ... 60
• Tolerance	%	± 10
ON period	%	100
Utilization category		1 (device destroyed after short-circuit)

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		Mechanical switching	Solid-state switching of reversing soft starters
Operational voltage	V AC	200 ... 460; three-phase	200 ... 460; three-phase
• Tolerance	%	±10	±10
Operational current			Performance class
			3
• Class 10	A	0.3 ... 9	0.3 ... 3
• Class 20	A	0.3 ... 7.3	2.4 ... 12
• Class 30	A	0.3 ... 6.7	0.3 ... 3
			2.4 ... 7.3
			0.3 ... 3
			2.4 ... 6.7
Switching capacity			
• AC-3	A	9.0	--
• AC-53	A	--	3 (0.3 ... 3)
• AC-4	A	6.5	12 (2.4 ... 12) ¹⁾
			3 (0.3 ... 3)
			12 (2.4 ... 12) ¹⁾
Switching load		Three-phase with contactor	Two-phase with thyristors
Max. heat sink temperature	°C	--	+80 ²⁾
Short-circuit protection			
Melting fuse	A	$I_{Cu} = 120$ kA aM 16/500 V AC	$I_{Cu} = 120$ kA aM 16/500 V AC
Endurance of the switching element		See manual	

1) Max. 9 A when soft starter control function is deactivated.

2) The heat sink temperature is monitored; switch-off occurs if the maximum value is exceeded.