

Intelligent Motor Soft Starter of AJR3 Series

1.Introduction

The intelligent motor soft starters of AJR3 series, being ideal substitutes for former star / delta switch, auto step-down and magnetic control step-down starting equipments etc.for motors, are new type equipments developed based on the latest motor control theory, motor protection technologies and modern computer technologies, the performance of which is far more advanced than most of those soft starters being independent of multiple closed-loop control technology.

2.Performance

- 2.1 The starting current of motor is saved effectively, reducing distribution capacity and preventing grid capacity-increase investment.
- 2.2 The starting stress of motor and loading equipment is reduced, prolonging service life of the motor and relative equipment.
- 2.3 The soft shutdown function helps to solve the problem of shutdown surge of inertial system effectively (which is impossible for traditional starting equipment).
- 2.4 Six unique starting modes are provided in order to realize running under complicated requirement of motor and load, reaching perfect starting effect.
- 2.5 Perfect and reliable protection design is provided, ensuring smooth utilization of motors and relative production equipment.
- 2.6 The application of intelligent and network technologies for motor starting adapts the motor control technology to higher requirement of rapidly developed electric power automation technologies.

3.Feature

- 3.1 Perfect humanized design:
 - Harmonious integration of elegant appearance and reasonable structure.
 - Harmonious integration of perfect function and easy operation.
 - Harmonious integration of reliable performance and compact structure.
 - State-of-the-art design of industrial products.
- 3.2 Reliable quality assurance:
 - Computer simulation design
 - SMT process.
 - Perfect electromagnetic compatibility.
 - High temperature aging and vibration test before ex-factory
- 3.3 Perfect and reliable protection
 - No-voltage protection, undervoltage protection and overvoltage protection.
 - Overheat protection and over stating time protection of soft starter.
 - Input open phase protection, output open phase protection and three-phase unbalance protection.
 - Starting overcurrent protection, running overload protection and load short circuit protection
- 3.4 Products with independent intellectual property right:
 - Appearance design patent.
 - Independent software copyright.
 - Unique motor starting and protection technology.
 - Special testing and commissioning equipment and process.
- 3.5 Quick and considerate after-sales service:
 - The reliable performance and quality are the base of excellent services.
 - Corresponding perfect design plans can be provided.
 - Timely and considerate consultancy services can be provided.
 - The performance of products can be improved continuously according to the requirement of users.

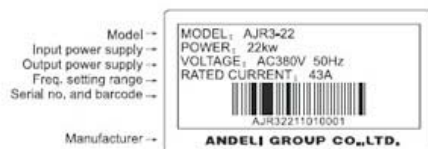
4.Condition

- 4.1 Power supply: Urban power supply, self-provided power station, diesel generating set, three-phase AC 380V or 660V $\pm 15\%$, 50Hz or 60Hz. The power supply capacity must meet the requirement of the soft starter for motor starting.
- 4.2 Available motor: Three-phase asynchronous squirrel cage motor. The rated power of the motor shall match with that of the soft starter.
- 4.3 Starting frequency: Dependent on the actual load.
- 4.4 Cooling mode: Natural air cooling.
- 4.5 Protection level: IP 20.
- 4.6 Environment: Place with altitude, ambient temp, relative humidity and vibration being below 1000m, 0°C ~+40°C, below 90%RH and 0.5G respectively, free from condensate, corrosive / inflammable / explosive gas, conductive dust, and with good indoor ventilation.

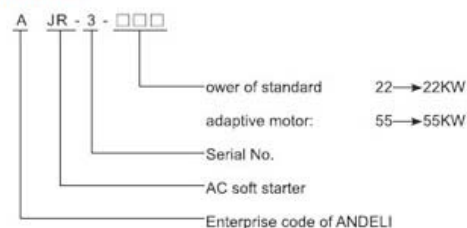




5.Nameplate



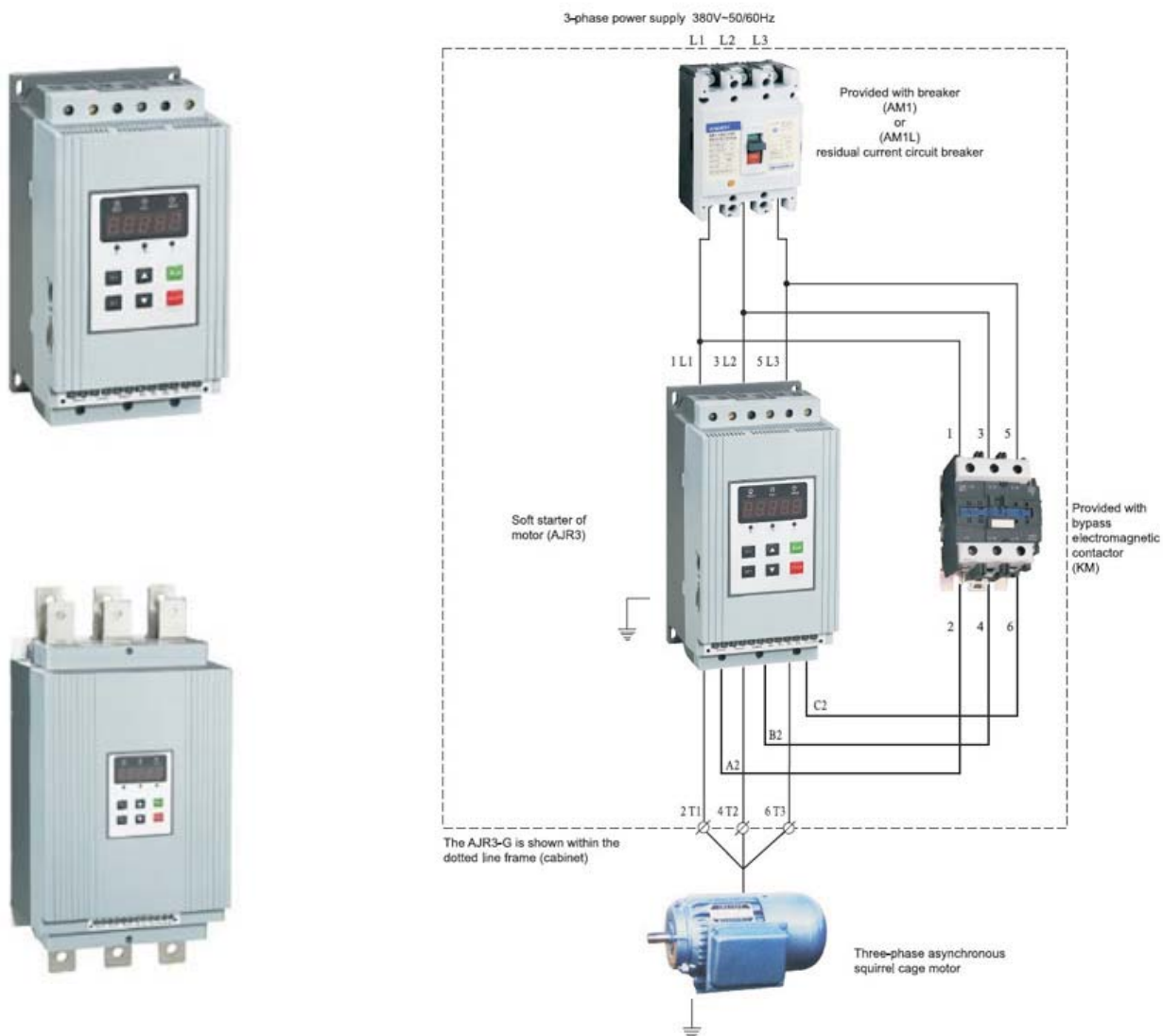
6.Model



7.Electrical specification of AJR3

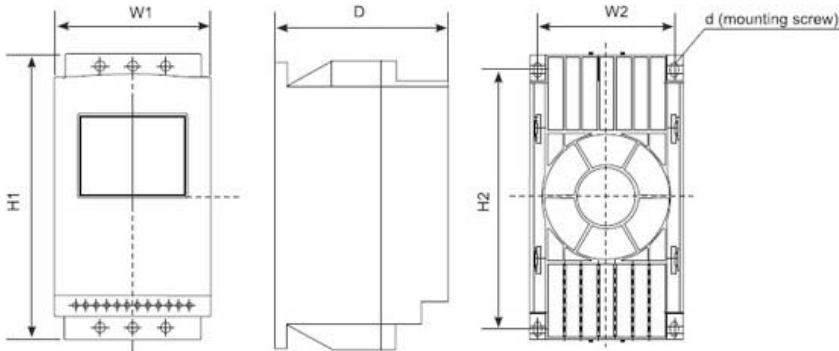
Standard		The AJR3 introduces the electronic soft start-stop device meeting the performance test and national standard: (GB14048.6-1998)	
Voltage of three-phase power supply (U)V		208-10%...240+10% 380-15%...415+10% 440-15%...500+10%	
Freq. Hz		50	
Nominal current A		10...1000, 20 rated values totally	
Power of motor KW		5.5...500	
Rated nameplate volt of motor	V	208...240	
		380...415	
		440...500	
Current adjustment		The nominal current I_n of motor can be adjusted within 0.5~1.3 times the rated starter current , the max. starting current can be adjusted within 2~7 times the I_n , the current limit is 5 times the set value.	
Start mode		Limited start current: $5I_n$ Factory setting: $3I_n$ under standard load when the torque integral is 16s. $3.5I_n$ under heavy load when the torque integral is 15s.	
Shutdown mode	Free shutdown	Free shutdown	
	Soft shutdown	Programmable adjustment within 0.5 ~ 60s	
	Shutdown by braking	Programmable adjustment within 0.5 ~ 60s (order protocol)	
Display and keyboard		Motor running current (or current percentage) can be shown during normal running; the relative information can be shown when fault occurs; parameter, contact function and lock-stop can be set through keyboard.	
Output relay (2)		JR	JM
	Type of contact	1 "Normally On" + 1 "Normally Off"	1 "Normally On" + 1 "Normally Off"
	Factory setting	Output of starting relay	Output port of fault relay
	Max. operating power ~ 220V VA	Starting power 1200, holding power 120	
	Min. switching cap. A	100mA-24V	
	Nominal operating cur. A	0.5, class AC-14, AC-15 (240V AV) and DC-13 (48VDC)	
	Nominal thermocurrent A	5	
	Max operating volt	~400V	
Service life		500million times	
Protection	Protection of main power supply	Integrated protection of motor and starter Open phase protection and phase unbalance protection - indicated by output relay	
Selection starter		The AJR3 device can be selected according to the nominal power and load of the motor The power of starter is available for standard or heavy load.	

8. Main circuit wiring diagram of AJR3



10.Overall and installation size of AJR3

10.1 Outside drawing of 5.5kW~75kW soft starter of AJR3 series



10.2 Installation size of 5.5kW~75kW soft starter of AJR3 series

Spec.	Rated power (kW)	Rated current (A)	Overall size			Installation size			Net weight (kg)
			W1	H1	D	W2	H2	d	
AJR3-5.5	5.5	11	146	270	160	131	247	M6	< 5
AJR3-7.5	7.5	15	146	270	160	131	247	M6	< 5
AJR3-11	11	23	146	270	160	131	247	M6	< 5
AJR3-15	15	30	146	270	160	131	247	M6	< 5
AJR3-18.5	18.5	37	146	270	160	131	247	M6	< 5
AJR3-22	22	43	146	270	160	131	247	M6	< 5
AJR3-30	30	60	146	270	160	131	247	M6	< 5
AJR3-37	37	75	146	270	160	131	247	M6	< 5
AJR3-45	45	90	146	270	160	131	247	M6	< 5
AJR3-55	55	110	146	270	160	131	247	M6	< 5
AJR3-75	75	150	146	270	160	131	247	M6	< 5

RMK: The rated power and rated current refer to the max. rated value of the soft starter. Generally, the corresponding parameters of the motor shall not be higher than this value.