



GE Power Controls

ASTAT S

Instructions Manual

Manual de Instrucciones

Manual d'Utilisation

Manuale d'Istruzione

Benutzerhandbuch

ASTAT S is compact, easy to operate soft starter, designed for use with standard 3 phase squirrel cage motors. It provides an advanced method of reducing current during motor starting and stopping. ASTAT S will start supplying a reduced voltage to the motor, increasing up to the rated voltage, avoiding so, high currents and generating soft starting and stopping. The motor has to be able to start in a reduced voltage.

INSTALLATION NOTES

Prior to installation

Check that the motor's full load current (FLC) is lower than or equal to your embodiment rated current. (See Table Motors selection).

Mounting

Do not mount the starter near heat sources and ensure the starter is protected from dust, corrosive and explosive atmospheres. Altitude should not exceed 1000m. Above this altitude, derate power 5% each 100m.

Ambient conditions

The starter is rated to operate over a temperature range of 0°C to 40°C, (32°F to 104°F). For higher temperatures, derate power 1.2% for each °C, up to 60°C. Storage temperature, -20°C to 70°C, (-4 to 158 °F). Non condensed humidity inside the enclosure should not exceed 85%. Operating in pollution ambient degree 3, (IEC-947-1). Protection degree IP20.

Power Factor capacitors

Capacitors must be installed on the line side of the starter, when required and not on the motor side, otherwise damage will occur.

Overload, short circuit and transient protection

The starter and the motor must be protected against overload and short circuits by thermal protection device. When high transients are expected, an external protection should be used.

Connections

Line voltage must be connected to terminals 1L1, 3L2, 5L3. Motor connections to terminals 2T1, 4T2, 6T3. Do not interchange line and motor connections. 1-57 is the start /stop permanent command. 13-14, only for frames 31-44-58 A, end of acceleration output (EOR).

Displays

Green led (ON), indicates supply.

Yellow led (Start/Stop) illuminates upon Start command and during Soft Stopping.

Green led (Run) illuminates upon end of starting, when the internal by pass closes.

MODE OF OPERATION

Initial Voltage

The initial voltage determines the initial torque (the torque is directly proportional to the square of the voltage). A too high setting may cause inrush currents or mechanical shocks. A too low setting may result in prolonged time until the motor begin turning. Range 0-80% Un. (see fig. 1b)*

Ramp up time

The ramp up time determines the time from initial to full voltage. Range 0.5-5 sec. (see fig. 1b)*

Ramp down time

Ramp down time is used for motor soft stop. When Soft Stop is initiated, the starter output voltage is gradually ramped down. At the end of the deceleration time starting/stopping LED will turn off. Depending on the application inertia, once finished the ramp down time, motor may be still turning. (see fig. 2b)*

* fig. 1 & 2, are the real values from a 2,2 kW motor in a conveyor application. For other motor power and application, performing may be different.

Standard starting processes

- Set the front potentiometers as follows:
 - Starting torque at 30%.
 - Ramp up- time at 2 seconds.
- Connect the start voltage, the Start/Stop LED will illuminate. If the motor starts to turn shortly after the start signal and accelerates to full speed, proceed to 3. If not, increase the Starting Torque setting until the motor, starts to turn shortly after the start signal. When, upon starting, the inrush current and mechanical shock are to high, decrease Starting Torque setting, and proceed to 3.
- Disconnect the start command and wait until the motor stops.
- Start again to check that the acceleration process to full speed is as required.
- If acceleration time is to quick, increase the ramp-up setting.

Soft stopping

Set the ramp-down potentiometer to 5 seconds and disconnect the start command. The internal by-pass relays open and voltage to the motor will be slowly ramped down.

CAUTION

Installation, operation and maintenance should be in strict accordance with this instruction manual, national codes and good practice. Installation or operation not performed with these instructions will void the manufacture's warranty.

When main voltage is connected to ASTAT S, even if the start signal is not initiated, full voltage may appear on starter's load terminals. Disconnect all power inputs before wiring or servicing equipment.

This product has been designed for class A equipment. Use of the product in domestic environments may cause radio interference, in which case the user should employ additional mitigation methods.

Rated Operational Voltage*

QA12P _ _ S	380/415 -15/+10%VACrms 50/60Hz +5/-5 Hz
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QA22P _ _ S	480/500 -15/+10%VACrms 50/60Hz +5/-5 Hz
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QA32P _ _ S	575/600 -15/+10%VACrms 50/60Hz +5/-5 Hz
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Load

3-phase, 3 wire, squirrel cage motor

Control specifications

		Standards
Ram up	0,5-5 s	CE marking
Ramp down	0,5-5 s	
Initial voltage	0-80% Un	
Initial torque	0-64% Tn	

Environment*

Operating temperature	0 - 40 °C (32 - 140 °F)
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Storage temperature	-20 - 70 °C (-4 - 158 °F)
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Humidity	up to 80%
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Altitude	up to 1000m
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Protection degree	IP20
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Wiring

Power terminals	mm ²	AWG	Nm(lb/in)
QA _ 2P008S	1	18	0,4(3,7)
QA _ 2P017S	2,5	14	0,4(3,7)
QA _ 2P022S	4	12	0,4(3,7)
QA _ 2P031S	6	10	0,4(3,7)
QA _ 2P044S	10	8	0,8(7)
QA _ 2P058S	16	6	1,8(16)

Motor rating selection
 Selección de potencia de motor
 Sélection puissance de moteur

Selezione taglia motore
 Motorauswahl

	Rated Current A	Frequency Hz	MOTOR		
			380/415V kW - hp	480/500V kW - hp	575/600V kW - hp
ASTAT S - 400V					
QA12P008S	8	50/60	4,0 - 5	-	-
QA12P017S	17	50/60	7,5 - 10	-	-
QA12P022S	22	50/60	11,0 - 15	-	-
QA12P031S	31	50/60	15,0 - 20	-	-
QA12P044S	44	50/60	22,0 - 30	-	-
QA12P058S	58	50/60	30,0 - 40	-	-
ASTAT S - 500V					
QA22P008S	8	50/60	-	5,5 - 7,5	-
QA22P017S	17	50/60	-	11,0 - 15	-
QA22P022S	22	50/60	-	15,0 - 20	-
QA22P031S	31	50/60	-	22,0 - 30	-
QA22P044S	44	50/60	-	30,0 - 40	-
QA22P058S	58	50/60	-	45,0 - 60	-
ASTAT S - 600V					
QA32P008S	8	50/60	-	-	7,5 - 10
QA32P017S	17	50/60	-	-	15,0 - 20
QA32P022S	22	50/60	-	-	22,0 - 30
QA32P031S	31	50/60	-	-	30,0 - 40
QA32P044S	44	50/60	-	-	37,0 - 50
QA32P058S	58	50/60	-	-	55,0 - 75

Operations and Cycles/hour
 Maniobras y Ciclos/hora
 Nombre de démarrages et de cycles par heure

Operazioni e cicli ora
 Befehls- und Zyklusstunden

	Starting Current	Ramp 1 sec.		Ramp 2 sec.		Ramp 5 sec.	
		Ops./hour	Cycles/hour	Ops./hour	Cycles/hour	Ops./hour	Cycles/hour
QA_2P008S	8	450	225	210	105	100	50
	16	210	105	100	50	46	23
	24	130	65	66	33	28	14
	28 (*)	108	54	56	28	22	11
QA_2P017S	17	450	225	210	105	90	45
	34	210	105	100	50	42	21
	51	130	65	66	33	26	13
	60 (*)	108	54	56	28	22	11
QA_2P022S	22	450	225	210	105	90	45
	44	210	105	100	50	42	21
	66	130	65	66	33	26	13
	77 (*)	108	54	56	28	22	11
QA_2P031S	31	720	360	360	180	140	70
	62	400	200	210	105	80	40
	93	276	138	130	65	52	26
	110 (*)	224	112	100	50	44	22
QA_2P044S	44	720	360	360	180	140	70
	88	400	200	210	105	80	40
	132	276	138	130	65	52	26
	155 (*)	224	112	100	50	44	22
QA_2P058S	58	720	360	360	180	140	70
	116	400	200	210	105	80	40
	174	276	138	130	65	52	26
	200 (*)	224	112	100	50	44	22

(*) Maximum Starting current at all
 Máxima corriente de arranque
 Courant maximum de démarrage

Corrente massima di avviamento
 Maximaler Startstrom

Performance
 Prestaciones
 Performance

Prestazioni
 Leistungsfähigkeit

Fig. 1a (DOL start)

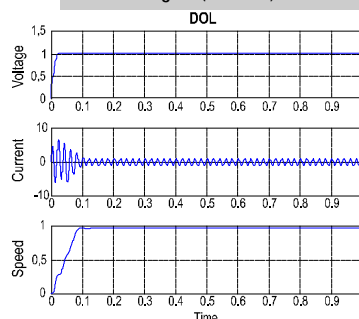


Fig. 1b (ASTAT S soft start)

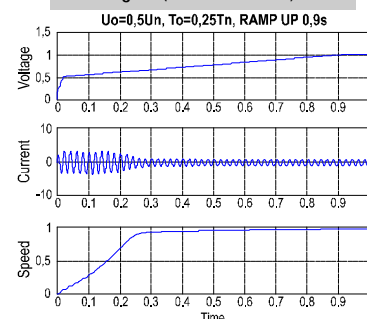


Fig. 2a (DOL stop)

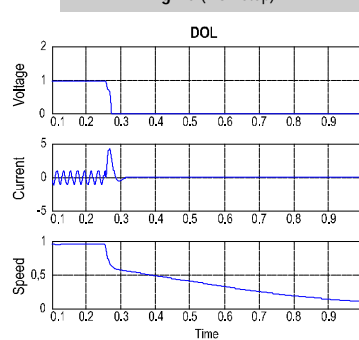
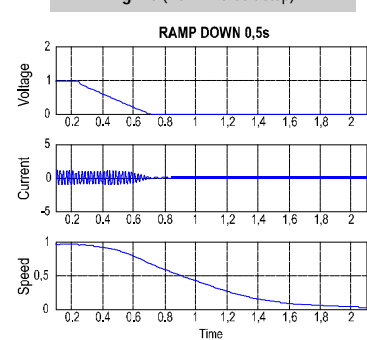


Fig. 2b (ASTAT S soft stop)

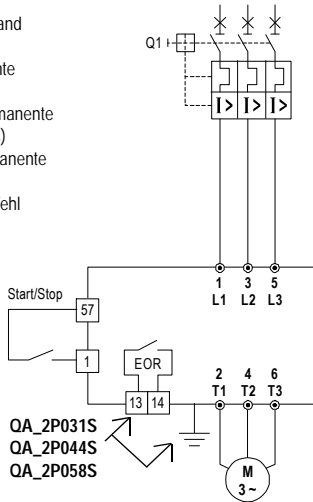


**Power Drive Services Ltd.
Unit 1, Victoria St. Ind. Est.
Leigh, Gtr. Manchester.
WN7 5SE U.K.**

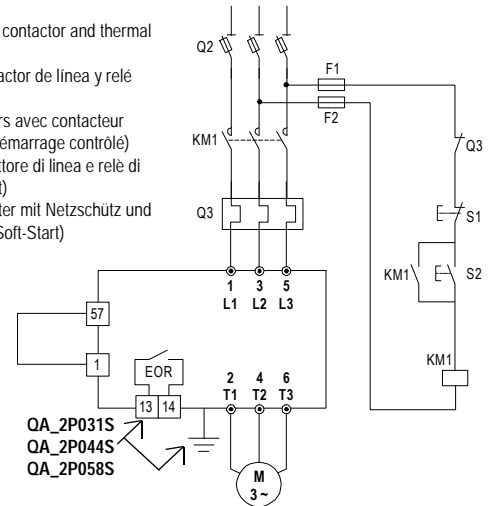
**Tel +44 1942 260206
Fax +44 1942 260525**

www.softstart.co.uk www.inverter.co.uk

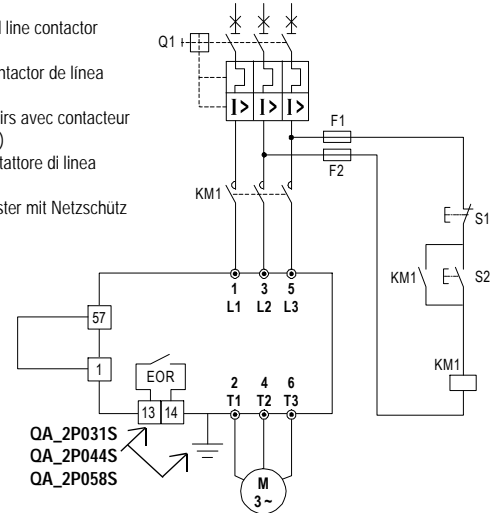
- Control by permanent command (soft start and stop)
- Control por mando permanente (arranque y paro controlado)
- Contrôle par commande permanente (démarrage et arrêt contrôlés)
- Controllo con comando permanente (Soft Start e Stop)
- Ansteuerung durch Dauerbefehl (soft-Start und Stop)



- Control by push buttons, line contactor and thermal overload relay (soft start)
- Control por pulsadores, contactor de línea y relé térmico (arranque suave)
- Contrôle par bouton-poussoirs avec contacteur réseau et relais thermique (démarrage contrôlé)
- Controllo con pulsanti, contattore di linea e relé di protezione termica (Soft Start)
- Ansteuerung durch Drucktaster mit Netzschütz und thermischen Überlastrelais (Soft-Start)



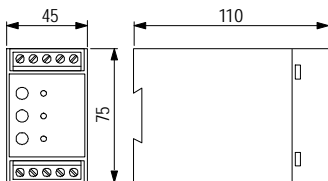
- Control by push buttons and line contactor (soft start)
- Control por pulsadores y contactor de línea (arranque suave)
- Contrôle par bouton-poussoirs avec contacteur réseau (démarrage contrôlé)
- Controllo con pulsanti e contattore di linea (Soft Start)
- Ansteuerung durch Drucktaster mit Netzschütz (Soft-Start)



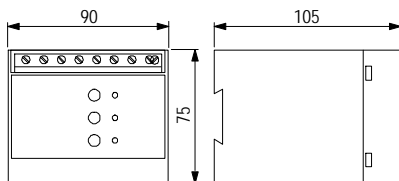
Motor (power) 380/415V		ASTAT S	Q1	Q2	KM1	Q3	F1-F2	S1-S2-S3
kW	hp			aM fuses				
4	5	QA12P008	GPS1B*AK	10	CL25A	RT A 1N	-	P9
7,5	10	QA12P017	GPS1B*AN	25	CL25A	RT A 1S	-	P9
11	15	QA12P022	GPS1B*AP	32	CL25A	RT A 1T	-	P9
15	20	QA12P031	GPS1B*AR	40	CL04A	RT A 1V	-	P9
22	30	QA12P044	GPS2B*AT	63	CL06A	RT A 2F	-	P9
30	40	QA12P058	GPS2B*AU	80	CL07A	RT A 2H	-	P9

Coordination type 2

QA12P008S
QA22P008S



QA_2P017S
QA_2P022S
QA32P008S



QA_2P031S
QA_2P044S
QA_2P058S

