

Chapter 7

TECHNICAL SPECIFICATION

<i>Contents</i>	<i>Page</i>
Input Supply	7-1
Speed Control	7-1
Current (Torque) Control	7-1
Adjustment Range.....	7-2
Environmental Requirements	7-2
EMC Technical Ratings.....	7-3
• Immunity	7-3
• Emissions	7-3
Electrical Ratings	7-4
Output Ratings with typical armature voltage, V_a , 80/90V (160/180V).....	7-4
Adjustment Ranges	7-4
Product Code	7-5

TECHNICAL SPECIFICATIONS

Input Supply

Parameter	Symbol	Value	Units
Frequency	Vs	50/60 \pm 10%	Hz
Voltage		110/120 \pm 10% or 220/240 \pm 10% (Earth (TN) or non-earth (IT) referenced)	V

Speed Control

- (1) Range selected by built in switches.
- (2) With IR comp setting optimised.
- (3) Consideration must be given to the motor at it may overheat at low speed.

Parameter	Symbol	Value	Units
Stall detect time		15 maximum 20 typical	s
Type of controller		Variable proportional plus integral	
Feedback method ⁽¹⁾		Va Tacho	
0-100% load regulation		2 ⁽²⁾ (typically) 0.1 (typically)	
Max. torque speed range		20:1 100:1 ⁽³⁾	%

Current (Torque) Control

- (1) Range selected by built in switches.
- (2) Suitable for armature time constants not less than 5ms.
- (3) **All control terminals are at a potential of the peak of the input supply with respect to earth (ground) \oplus .**

All cables should be rated for this voltage.

Parameter	Symbol	Value	Units
Overspeed limiting ⁽¹⁾		Standard ⁽¹⁾	
Type of controller ⁽²⁾		Fixed proportional plus integral	
Feedback method		Non-isolated shunt ⁽³⁾	
Linearity		2	

7-2 Technical Specification

Adjustment Range			
Parameter	Symbol	Value	Units
Armature loss comp.	IR comp	0 - 25% of V_a	%
Maximum speed	N max	100% \pm 25%	
Minimum speed	N min	0 - 25% of N max	
Ramp up time	Ramp	1 - 15 (minimum)	
Ramp down time	Ramp	1 - 15 (minimum)	

Environmental Requirements	
Operating Temperature	0 to +40°C (Derate 1.5% / Degree above 40°C)
Max. Operating Temperature	50°C
Humidity	85% R.H. at 40 ° C (non condensing)
Altitude	Above 1000m derate at 1% / 100m
Atmosphere	Non-flammable, non-corrosive and dust free
Storage Temperature Range	-25°C to +55°C
Transport Temperature Range	-25°C to +55°C
Enclosure	IP2X suitable for cubicle mounting
Installation Category	Overvoltage Category III.
Pollution	Pollution Degree 2.

EMC Technical Ratings

Immunity

Port	Phenomenon	Test Standard	Level	Criterion	Generic Standard
Enclosure Port	ESD RF Field	BS EN61000-4-2(1995)	8kV AD 10V/m,1kHz AM	Self Recovery No Change	EN50082 -1 (1992), and EN50082 -2 (1995)
Power Ports	Fast Transient Burst	BS EN61000-4-4(1995)	2kV	Self Recovery	
Signal & Control	Fast Transient Burst	BS EN61000-4-4(1995)	2kV	Self Recovery	
Power Interfaces	Fast Transient Burst	BS EN61000-4-4(1995)	2kV	Self Recovery	

Emissions

These levels of performance are achieved when installed as specified with the recommended Supply Filter.

* Achieved with up to 50m of motor cable.

Port	Phenomenon	Test Standard	Level	Generic Standard
Enclosure Port	Radiated	EN55011	Class B	EN50081-1 (1992)
Power Port	Conducted	EN55011	Class B*	EN50081-2 (1994)

Electrical Ratings

Output Ratings with typical armature voltage, V_a , 80/90V (160/180V)

- (1) Range selected by built in switches.
- (2) When the controller is energised the dc motor shunt field is permanently energised. It is the responsibility of the installer to ensure that this is not detrimental to the long term reliability of the dc motor.

Parameter	506		507		508	
Maximum Armature Output Current (IA) ⁽¹⁾	1.5A	3A	3A	6A	6A	12A
Typical Motor Horsepower (Hp)						
90V Armature (110/120V AC)	$\frac{1}{10}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{3}{4}$
180V Armature (220/240V AC)	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{3}{4}$	$\frac{3}{4}$	2
Typical Motor Power (kW)						
90V Armature (110/120V AC)	0.07	0.125	0.125	0.25	0.25	0.55
180V Armature (220/240V AC)	0.125	0.25	0.25	0.55	0.55	1.5
Controller loss (W)	5	10	10	20	20	40
Maximum AC Supply Current (Is, A rms)	3	4.5	6	9	12	18
Maximum I^2t for fusing (A ² s)	36	36	80	80	365	365
Maximum form factor (Is/IA)	2	1.5	2	1.5	2	1.5
Maximum Field Current ⁽²⁾ (If, A dc)	2					
Field Voltage (0.9 x Vs) V dc	V					
110/120V AC	90-100					
220/240V AC	180-200					

Adjustment Ranges

- * Range selected by built in switches.

Parameter	506	507	508
Maximum current * (I max, A)	0.25 - 3	0.5 - 6	1 - 12

Product Code			
Block	Product	Code	Feature
1	Basic Product	506	3 Amp
		507	6 Amp
		508	12 Amp
2	Livery	00	Standard
		01 to 99	Customer
3	Cover	20	IP20 Cover
4	Special Options	00	Standard
		01 to 99	Documented Special Options

7-6 Technical Specification