

DIGITAX SF



EASY TO USE,
LOW POWER SERVO SOLUTIONS

0.05 kW - 2 kW | 200 V

Digitax SF Highlights

- Magnetic encoder technology
- Versatile analogue or pulse train interface
- Built-in keypad
- Standalone operation
- PC-USB interface
- Multiple motor inertia levels available

KEY FUNCTIONS

Function	Function	Function
Operation mode: Position	✓	Command Mode: Pulse Train (Position) ✓
Operation mode: Velocity	✓	Command Mode: Analog (Velocity, Torque) ✓
Operation mode: Torque	✓	Command Mode: Internal (Position, Velocity) ✓
Pulse train input pulse form: Pulse/Direction	✓	Pulse train input pulse form: Quadrature Encoder Pulse ✓
Pulse train input pulse form: CCW/CW	✓	Analog Input Filter ✓
Position Command Filter	✓	Torque Limit ✓
Torque Command Filter	✓	Inching ✓
Jog	✓	Supply loss detection ✓
Bi-polar analog reference	✓	Analogue input control ✓
Internal Pre-set speeds	8	Homing to sensor ✓
Internal Point Moves	16	Homing to encoder z-pulse ✓
Homing to torque limit/stopper	✓	Temperature monitoring ✓
Acceleration Rates (Mode Dependent)	1 to 16	Digital input control ✓
Deceleration Rates (Mode Dependent)	1 to 16	Digital output control ✓
Command pulse frequency RS-422 max	4Mpps	Limit switch control ✓
Command pulse frequency open-collector max	200kpps	Analog Input filters ✓
Auto-tune rotating	✓	Pulse train input filter ✓
Energy meter	✓	Run time log ✓
Alarm time stamping	✓	Alarm logging 10
Auto reset	✓	Control word control ✓
Cloning	✓	Mechanical brake controller ✓
Stop mode: Coast	✓	Stop Mode: Emergency Stop Brake ✓
Stop mode: Quick Stop	✓	Stop mode: Short Brake ✓

DRIVE SPECIFICATION

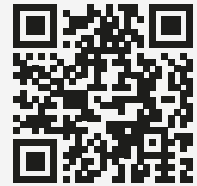
Digitax SF

Items supplied with the drive	Safety information, power input connector, encoder connector
Storage temperature	-20°C to 65°C, -4°F to 149°F
Operating temperature without de-rate	0°C to 50°C, 32°F to 122°F
Operating temperature with de-rate	N/A
Supply requirements	Maximum supply imbalance: 2 % negative phase sequence (equivalent to 3 % voltage imbalance between phases). Input frequency 45 to 66Hz
Switching frequency range	N/A
Approvals	CE (European Union), UL (508C if installed in appropriate environment), KC (Korea)
Product safety standard	EN61800-5-1
Functional safety (Dual STO function)	N/A
Altitude	≤1000m
Humidity	20 – 85% RH or less (Non-condensing)
Pollution	Degree 2. Dry, non-conducting pollution only
IP Rating	IPXX – Pollution degree 2
Vibration	≤5.8m/s (0.6G) 10 to 60Hz (no continuous operation allowed at resonant frequency)
Mounting methods	Surface mount, mounting holes only
Output frequency/speed range	0 - 500Hz (50W - 750W), 0 – 250Hz (1kW – 2kW)
Braking	Mechanical brake control, no internal braking resistor but an external emergency stop braking unit can be fitted
Operating modes	Position, Velocity, Torque
Overload capability	350% (50W to 100W), 300% (200W to 2kW)
Overvoltage category	II
Corrosive environments	Never use the product in an environment containing explosive or flammable gases, chloride, acidic or alkaline corrosive environment such as sulfur dioxide, chlorine, ammonia and so on
Immunity Compliance	EN 61000-6-2:2005
Emission compliance	EN55011:2009+A1:2010
Cooling	Forced cooled
Safe Torque off	None
Communications	RS-485

Control I/O	1 x Analogue Input, 1 x Analog Ground 8 x Digital Input Programmable, 6 x Digital Output, 2 x independent digital output, 1 x Control 24V Power Input, 1 x Control Ground, 1 x I/O COM +, 1 X I/O COM-, 7 x simulated encoder output, 3 x RS485 terminals, 8 x Position Pulse Inputs
Accuracy	Command pulse -paired ratio: 1/1000 < A/B < 1000, Analogue input: Single Ended ±10V
On-Board user program capability	N/A
Keypad	Fixed LED keypad
PC Tools	'Digitax SF Connect' commissioning, waveform monitor and point table setup.
Warranty	2 years
Supported options	N/A
Accessories	Input / Output (I/O) terminal block and cable assembly; Input / Output Interface Connector; Surge absorber / protector; EMC filter
Encoder	17-bit single or multi-turn (incremental)
Encoder Multi-turn count	65536

Documentation & Downloads

Product documentation and PC tools available for download from:
www.controltechniques.com/support



DIMENSIONS

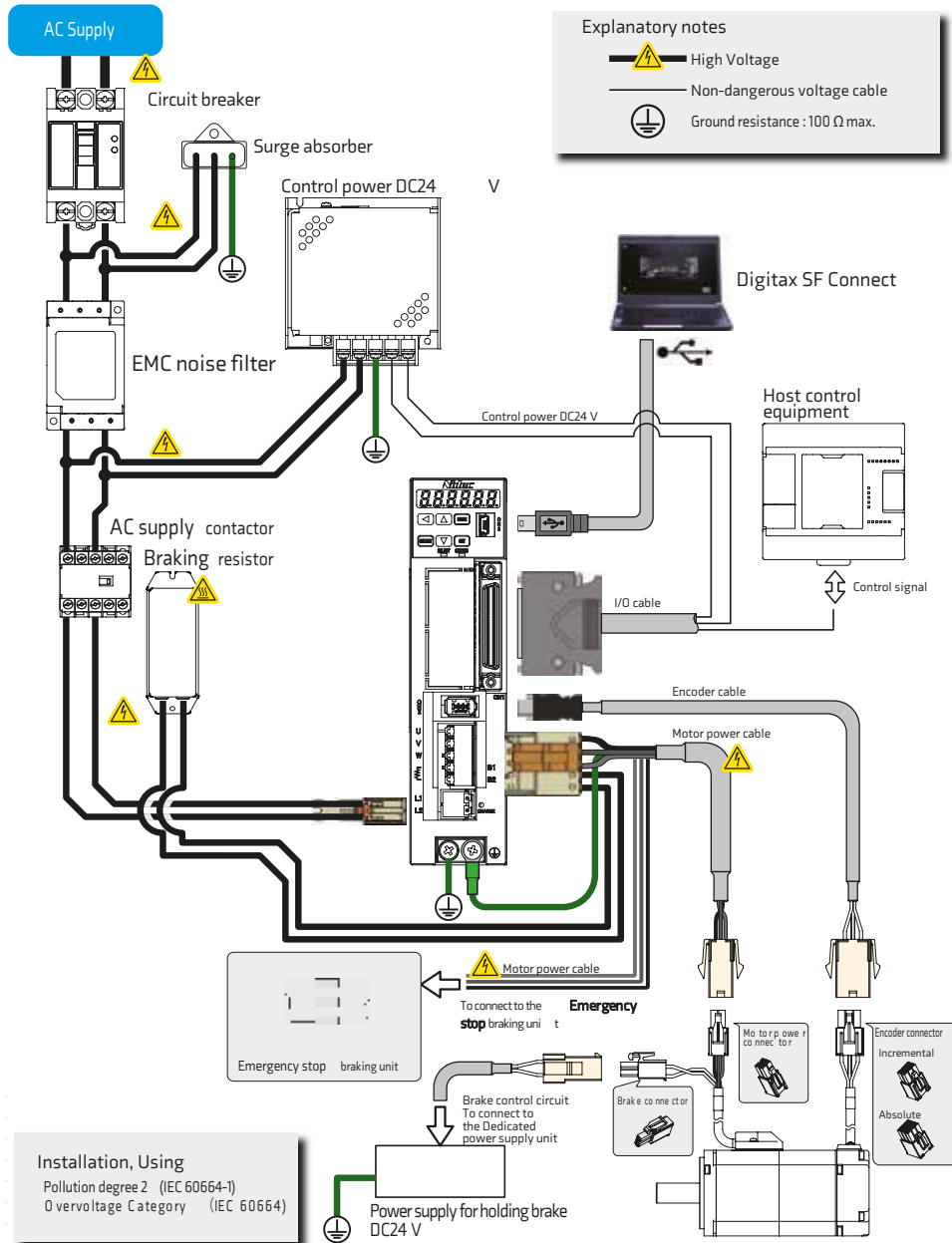


Frame Size	Overall Dimensions						Mounting Dimensions				Mounting Hole Diameter		Weight	
	mm			in			mm		in		mm	in	kg	lb
	H	W	D	H	W	D	H	W	H	W				
1	160	40	130	6.3	1.57	5.12	150	30	5.91	1.18	5.5	0.22	0.7	1.54
2	160	48	130	6.3	1.89	5.12	150	30	5.91	1.18	5.5	0.22	0.8	1.76
3	160	68	130	6.3	2.68	5.12	150	44	5.91	1.73	5.5	0.22	1	2.2
4	160	84	130	6.3	3.31	5.12	150	61.7 / 69*	5.91	2.72 / 2.43	5.5	0.22	1.6	3.53

* Mounting hole separation: 61.7mm at the top, 69mm at the bottom

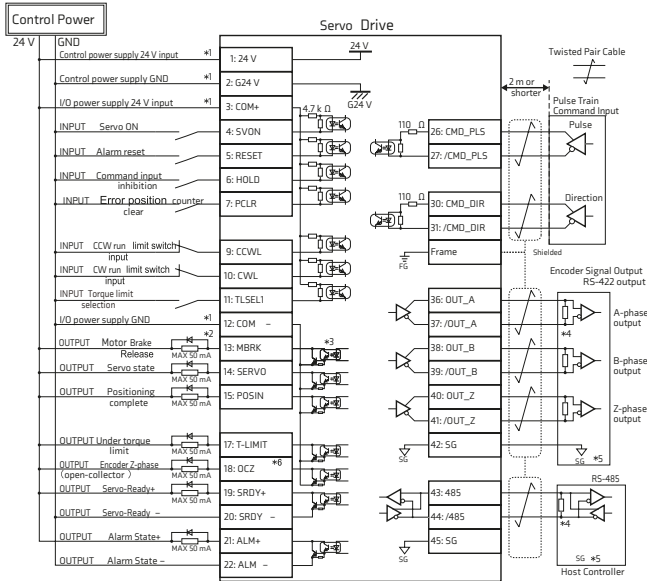
CONNECTIONS

Typical Power Connections

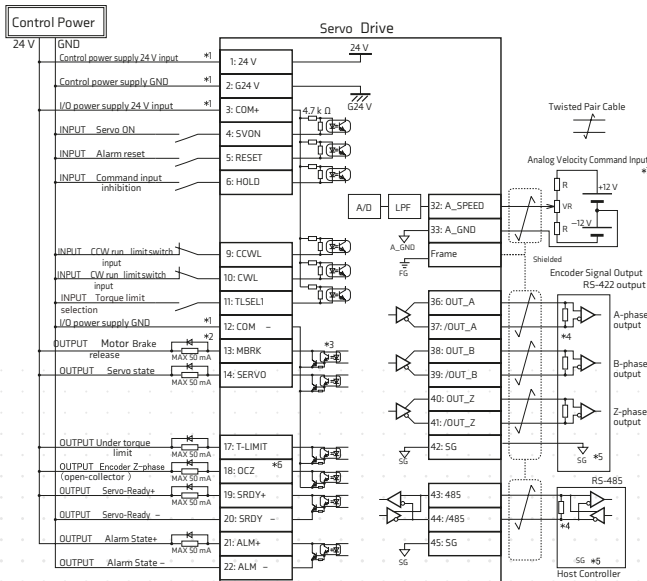


DEFAULT CONTROL CONNECTIONS

Pulse Train Command



Analog Velocity Command



DRIVE PART NUMBER

<p>DA</p> <p>⋮</p> <p>Series</p>	<p>2</p> <p>⋮</p> <p>Input Power Supply: 2: AC 200V-240V (50W - 750W: Single-phase) 1kW: Single-phase/three-phase 1.5kW, 2kW: Three-phase</p>	<p>Y</p> <p>⋮</p> <p>Compatible Motor: Y: Mx500x2xx, Z: Mx101x2xx 1: Mx201x2xx, 2: Mx401x2xx 3: Mx751x2xx, 4: Mx102x2xx 6: Mx152x2xx, 8: Mx202x2xx</p>	<p>Z</p> <p>⋮</p> <p>Main Circuit Power Supply: Z: 50W, 1: 100W, 2: 200W, 4: 400W, 8: 750W, A: 1kW, B: 1.5kW, C: 2kW</p>
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DRIVE RATINGS

Model No.	Frame Size	Supply Phases	Rated Current (A)	Motor Power (kW)	Motor Power (hp)	Compatible Motor		
						Model No.	Motor Flange Size (mm)	Motor Inertia
200V (200-240V +/-10%)								
DA2YZ	1	1	0.7	0.05	0.07	Mx500x2xx	40	Middle
DA2Z1	1	1	1	0.1	0.13	Mx101x2xx	40	Middle
DA212	1	1	1.7	0.2	0.27	Mx201x2xx	60	Low, High
DA224	1	1	2.7	0.4	0.53	Mx401x2xx	60	Low, High
DA238	2	1	4.3	0.75	1	Mx751x2xx	80	Low, High
DA24A	3	1/3	5.6	1	1.3	Mx102x2xx	130	Middle, High
DA26B	4	3	9.9	1.5	2	Mx152x2xx	130	Middle, High
DA28C	4	3	12.2	2	2.7	Mx202x2xx	130	Middle

DIGITAX SF MOTOR

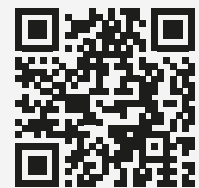
MOTOR SPECIFICATION

Digitax SF Motor	
Ambient temperature for operation	0 to 40°C
Ambient humidity for operation	20 to 85% RH (no condensation)
Ambient temperature for storage	-20 to 65°C (no condensation)
	(not subjected to direct sunlight) 80°C for 72 hours
Ambient humidity for storage	20 to 85% RH (no condensation)
Atmosphere for operation/storage	Indoors (not subject to direct sunlight)
	Free from corrosive gases, flammable gases, oil mist, dust, flammables, grinding fluid
Insulation resistance	≥5MΩ at 1,000VDC
Dielectric strength	AC 1500V for one minute across the primary Ground/Earth FG
Operating altitude	≤1000m
Vibration class	V15 (JEC2121)
Vibration resistance	49m/s ² (5G)
Impact resistance	98m/s ² (10G)
Protective structure	IP65: 50W to 750W
	IP67: 1kW to 2kW
Electric shock protection	Class I (Mandatory grounding)
Overvoltage category	II
Installation environment	Pollution degree 2

Documentation & Downloads

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MOTOR RATINGS

		MY500x2xx	MY101x2xx	MX201x2xx	MZ201x2xx	MX401x2xx	MZ401x2xx	MX751x2xx	MZ751x2xx	MM102x2xx	MH102x2xx	MM152x2xx	MH152x2xx	MM202x2xx	
Item	Units														
Inertia level	-	Middle	Middle	Low	High	Low	High	Low	High	Middle	High	Middle	High	Middle	
Fitting flange size	mm	40 sq.			60 sq.			80 sq.			130 sq.				
Motor length (without brake or oil seal)		66.4	82.4	76.5	93.5	110.5	107.3	122.3	128	163	145.5	180.5	163		
Motor length (without brake, with oil seal)		72	88												
Motor length (with brake, without oil seal)		106.8	122.8	113	130	147	144.3	159.3	153	188	170.5	205.5	188		
Motor length (with brake and oil seal)		112.4	128.4												
Approximate mass (without brake)	kg	0.4	0.5	0.8	1	1.3	1.5	2.2	2.5	5.6	7.6	7	9	8.4	
Approximate mass (with brake)	kg	0.6	0.8	1.3	1.5	1.8	2	3	3.3	7	9	8.4	10.4	9.8	
Compatible drive model number	-	DA2YZ	DA2Z1	DA212		DA224		DA238		DA24A		DA26B		DA28C	
Voltage	V	AC200 to 240V													
Rated output power	W	50	100	200		400		750		1000		1500		2000	
Rated torque	Nm	0.16	0.32	0.64		1.27		2.39		4.77		7.16		9.55	
Instantaneous maximum torque	Nm	0.56	1.12	1.91		3.82		7.1		14.3		21.5		28.6	
Rated current (stall current)	A	0.68	0.97	1.7		2.7		4.2		5.6		9		11.9	
Instantaneous maximum current	A	2.4	3.3	5.2		8.5		12.2		16.8		27		35.7	
Rated revolving speed	rpm					3000				2000					
Maximum revolving speed	rpm					6000				3000					
Torque constant	Nm/A	0.25	0.35	0.41		0.49		0.63		0.88		0.81		0.85	
Induced Voltage Constant per Phase	mV/rpm	8.8	12.3	14.3		17.1		21.9		30.9		28.4		29.6	
Rated power rate (without brake)	kW/s	6.5	16.5	28.2	9.1	69.4	23	76.6	35.4	50	9.2	76.9	13.8	104.9	

		MY500x2xx	MY101x2xx	MX201x2xx	MZ201x2xx	MX401x2xx	MZ401x2xx	MX751x2xx	MZ751x2xx	MM102x2xx	MH102x2xx	MM152x2xx	MH152x2xx	MM202x2xx
Item	Units													
Rated power rate (with brake)	kWs	5.4	14.6	23.5	8.6	61.8	22.1	60.7	31.6	36.5	8.6	61.4	13.3	87.9
Mechanical time constant (without brake)	ms	1.92	1.17	0.72	2.23	0.47	1.42	0.4	0.86	0.76	4.17	0.6	3.32	0.58
Mechanical time constant (with brake)	ms	2.31	1.32	0.87	2.38	0.53	1.47	0.5	0.96	1.05	4.43	0.75	3.46	0.69
Electrical time constant	ms	0.74	0.89	2.53	2.92	4.6	10.1	12.2	12.2					
Rotor moment of inertia (without brake)	x10 ⁻⁴ kgm ²	0.039	0.061	0.14	0.44	0.23	0.71	0.74	1.61	4.56	24.9	6.67	37.12	8.7
Rotor moment of inertia (with brake)	x10 ⁻⁴ kgm ²	0.047	0.069	0.17	0.47	0.26	0.73	0.94	1.81	6.24	26.4	8.35	38.65	10.38
Permissible radial load	N	68	245	392	490									
Permissible axial load	N	58	98	147	196									

BRAKE RATINGS

		MY500A2xx	MY101A2xx	MX201A2xx	MZ201A2xx	MX401A2xx	MZ401A2xx	MX751A2xx	MZ751A2xx	MM102A2xx	MH102A2xx	MM152A2xx	MH152A2xx	MM202A2xx
Item	Units													
Usage	-	Holding												
Rated voltage	V	DC 24V ± 10%												
Rated current	A	0.25	0.3	0.4	1.0									
Static friction torque	Nm	≥0.16	≥0.32	≥1.27	≥2.39	≥9.55								
Engage time	ms	≤35	≤50	≤70	≤120									
Release time	ms	≤20	≤15	≤20	≤30									
Release voltage	V	≥DC 1V												



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