DIGIFLEX® DIGITAL SERVO DRIVES
MODEL: DQ111EE30A80LAC

WITH SynqNet™ **INTERFACE**

FEATURES:

- Fully digital, state-of-the-art design
- Space Vector Modulation and vector control technology
- 20kHz Digital current loop with programmable gain settings
- Hall sensor + encoder or encoder-only based sinusoidal commutation
- Surface-mount technology
- Small size, low cost, ease of use

- SynqNet™ motion control network interface
- Windows95/98/2000/ME/NT© based setup software for setup via SynqNet™ interface
- Operates in torque mode with programmable gain settings and current limiting

- 2 programmable isolated digital inputs
- 2 programmable isolated digital outputs
- Dedicated Brake and Node Alarm outputs
- 14-bit reference input or programmable analog input
- 2 high-speed differential inputs (high-speed capture, encoder input)
- 2 high-speed differential outputs (step&dir, divide-by-N)
- Dedicated, isolated node disable, positive and negative limits, and home inputs

- Up to 3-phase 480VAC nominal operation
- Separate 24VDC logic supply
- Four quadrant regenerative operation
- Integrated shunt regulator
- Internal DC bus output for power sharing or regeneration
- Bi-color LED status indicator
- Extensive built-in protection against:
  - over-voltage (programmable)
  - under-voltage (programmable)
  - short-circuit: phase-phase, phase-ground, phase-line, phase-DC bus
  - over-current
  - over-temperature

*** Picture for reference only**

ADVANCED MOTION CONTROLS
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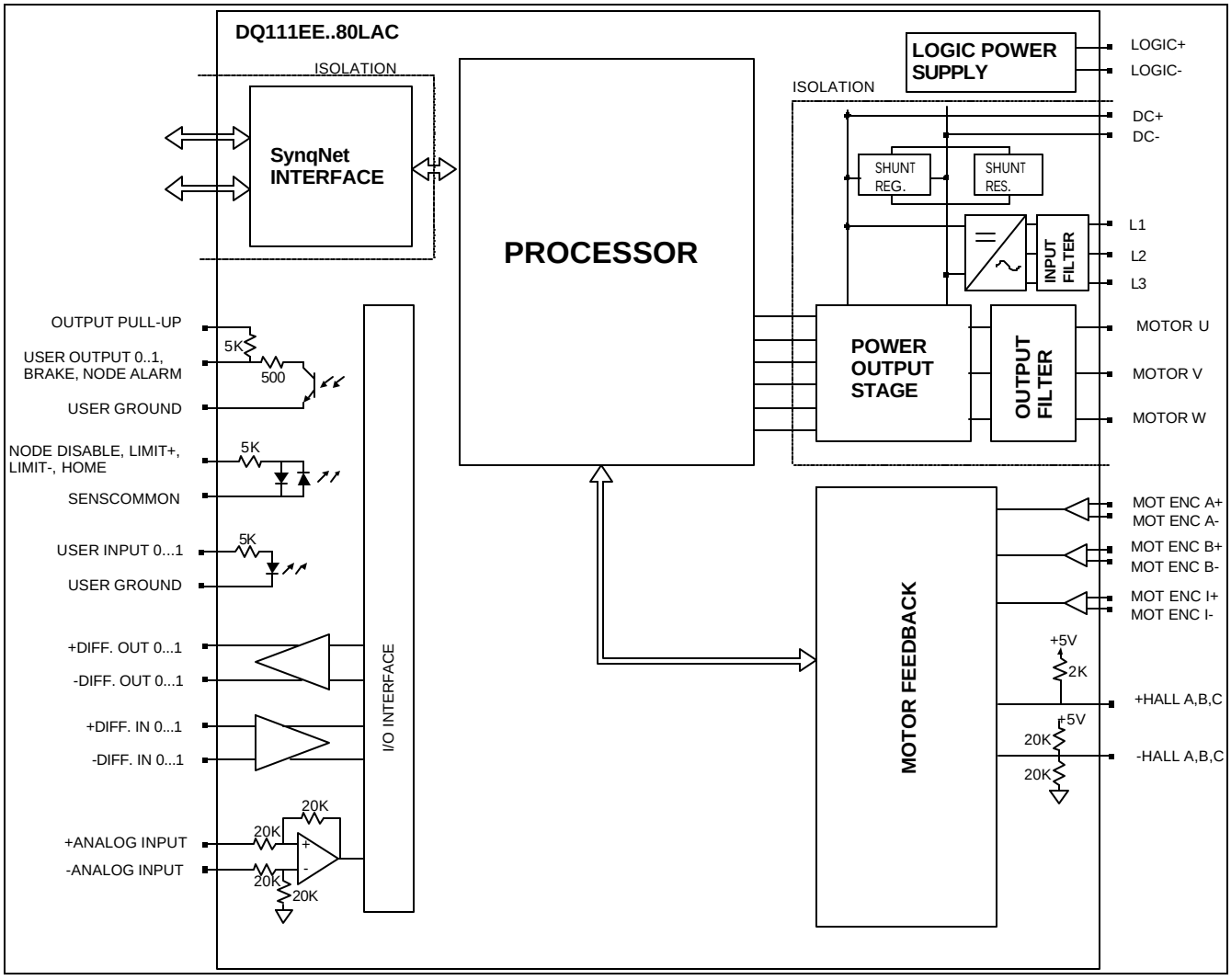
BLOCK DIAGRAM:



DESCRIPTION:

The DQ111EE Series digital PWM servo drives are designed to drive brushed and brushless servomotors. These fully digital drives operate in torque mode and employ Space Vector Modulation (SVM), which results in higher bus voltage utilization and reduced heat dissipation. The command source can be generated internally or can be supplied externally. In addition to motor control, these drives feature dedicated and programmable digital and analog inputs and outputs to enhance interfacing with external controllers and devices.

DQ111EE Series drives feature a SynqNet™ interface for high-speed digital command operation in networked applications. Drive commissioning can be accomplished through a fully graphical Windows© based application via the SynqNet interface™.

More information about SynqNet™ can be obtained at http://www.synqnet.org.

All drive and motor parameters are stored in non-volatile memory.

SPECIFICATIONS:

POWER STAGE SPECIFICATIONS	**DQ111EE30A80LAC**
AC SUPPLY VOLTAGE	0 - 480 VAC, 3-phase, 50 – 60 Hz nominal
DC LOGIC SUPPLY	20…30 VDC, 20W maximum
PEAK CURRENT	30A (21.2 Arms)
MAXIMUM CONTINUOUS CURRENT	15A (10.6 Arms)
MINIMUM LOAD INDUCTANCE	3mH
SWITCHING FREQUENCY	10 kHz
HEATSINK (BASEPLATE) TEMPERATURE RANGE	0 to 65 ºC, disables at 65 ºC
POWER DISSIPATION AT CONTINUOUS CURRENT	488W
MIN. UNDER-VOLTAGE SHUTDOWN	215 VDC nominal
MAX. OVER-VOLTAGE SHUTDOWN	850 VDC nominal
SHUNT RESISTOR	47 Ohm, 50W
SHUNT SWITCH-ON VOLTAGE	Programmable
SHUNT FUSE	3A Motor Delay @ 250VAC

MECHANICAL SPECIFICATIONS	
LOGIC POWER CONNECTOR: P1	Removable screw terminal
MOTOR POWER CONNECTOR: P2	Removable screw terminal
MAIN POWER CONNECTOR: P3	Removable screw terminal
DC BUS OUTPUT CONNECTOR: P4	Removable screw terminal
MOTOR FEEDBACK CONNECTOR: CN4*	15-pin high density female D-sub
I/O CONNECTOR: CN3*	26-pin high density female D-sub
SYNQNET™ CONNECTOR: CN1, CN2*	8-pin RJ45
SIZE	12.99 x 10.08 x 2.48 inches 330 x 256 x 63 mm
WEIGHT	8.8 lbs. 4 kg

*** Mating connectors are not included.**

PIN FUNCTIONS:

P1 – Logic Supply Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P1	1	LS+	Logic supply input	I
	2	LS-	Logic supply ground	GND

P2 - Motor Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P2	1	PE	Protective earth ground	PE
	2	Mot C	Motor phase C	O
	3	Mot B	Motor phase B	O
	4	Mot A	Motor phase A	O

P3 – Main Power Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P3	1	PE	Protective earth ground	PE
	2	L3	Main AC line L3	I
	3	L2	Main AC line L2	I
	4	L1	Main AC line L1	I

P4 – DC Bus Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P4	1	DC-	Internal DC bus voltage output	PGND
	2	DC-		
	3	DC+		O
	4	DC+		

CN4 - Motor Feedback Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN4	1	+Hall A	Commutation sensor inputs. Internal 2K pull-up to +5VDC. Can be used with single ended or differential Hall sensors.	I
	2	+Hall B		I
	3	+Hall C		I
	4	MOT ENC A+	Differential Encoder Input. For single ended encoder signals, leave the A– terminal open.	I
	5	MOT ENC A-		I
	6	MOT ENC B+	Differential Encoder Input. For single ended encoder signals, leave the B– terminal open.	I
	7	MOT ENC B-		I

	8	MOT ENC I+	Differential Encoder Input. For single ended encoder signals, leave the I– terminal open.	I
	9	MOT ENC I-		I
	10	-Hall A*	See CN4-1. Leave open in case of single ended Hall sensors.	I
	11	-Hall B*	See CN4-2. Leave open in case of single ended Hall sensors.	I
	12	SGND	Signal ground	SGND
	13	+5V OUT	+5V @ 250mA max. Short-circuit protected.	O
	14	Reserved		
	15	-Hall C*	See CN4-3. Leave open in case of single ended Hall sensors.	I

CN3 – I/O Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN3	1	USER OUTPUT 0	Programmable digital output. Isolated, 24VDC, referenced to USER GND	O
	2	USER OUTPUT 1	Programmable digital output. Isolated, 24VDC, referenced to USER GND	O
	3	USER GND	Ground reference for user outputs and inputs.	GND
	4	NODE ALARM	SynqNet network error. Isolated, 24VDC, referenced to USER GND	O
	5	BRAKE	Brake output, controlled directly via SynqNet. Isolated, 24VDC, referenced to USER GND	O
	6	AGND	Analog ground	AGND
	7	+ DIFF. INPUT 0	Differential input. 5V TTL., non-isolated. Programmable function: capture	I
	8	- DIFF. INPUT 0		I
	9	OUTPUT PULL-UP	5K Pull-up for user outputs.	I
	10	NODE DISABLE	Node disable input. Isolated, 24VDC range. Referenced to sensor common (SENSCOMMON).	I
	11	LIMIT +	Positive limit input. Isolated, 24VDC range. Referenced to sensor common (SENSCOMMON).	I
	12	LIMIT -	Negative limit input. Isolated, 24VDC range. Referenced to sensor common (SENSCOMMON).	I
	13	HOME	Home switch input. Isolated, 24VDC range. Referenced to sensor common (SENSCOMMON).	I
	14	USER INPUT 0	Programmable digital input. Isolated, 24VDC, referenced to USER GND	I
	15	USER INPUT 1	Programmable digital input. Isolated, 24VDC, referenced to USER GND	I

	16	SENSCOMMON	Sensor common. Used with E-stop, limit +, limit -, and home inputs. Can be used as a ground reference or as a pull-up for these inputs.	COMMON
	17	+ DIFF. INPUT 1	Differential input. 5V TTL., non-isolated Programmable function: capture	I
	18	- DIFF. INPUT 1		I
	19	SGND	Digital ground	SGND
	20	+ DIFF. OUTPUT 0	Differential output. 5V TTL., non-isolated. Programmable function: step&dir, divide-by-N	O
	21	- DIFF. OUTPUT 0		O
	22	+ DIFF. OUTPUT 1	Differential output. 5V TTL., non-isolated. Programmable function: step&dir, divide-by-N	O
	23	- DIFF. OUTPUT 1		O
	24	+ANALOG IN	Programmable, differential analog input, +/- 10V range, 14-bit.	I
	25	-ANALOG IN		I
	26	AGND	Analog ground.	AGND

CN1 – SYNQNET™ INTERFACE:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN1	1	RD+	100BaseT receiver	I
	2	RD-		I
	3	TD+	100BaseT transmitter	O
	6	TD-		O
	4, 5, 7, 8	N/C	Not connected	

CN2 – SYNQNET™ INTERFACE:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN2	1	TD+	100BaseT transmitter	O
	2	TD-		O
	3	RD+	100BaseT receiver	I
	6	RD-		I
	4, 5, 7, 8	N/C	Not connected	

ORDERING INFORMATION:

Standard model: DQ111EE30A80LACX

X indicates the current revision letter.

MOUNTING DIMENSIONS: