DIGIFLEX® DIGITAL SERVO DRIVES
MODEL: DR101RE30A80LAC (-10, -16)

FEATURES:

- Fully digital, state-of-the-art DSP design
- Space Vector Modulation technology
- 10kHz PWM and digital current loop with programmable gain settings
- Resolver based commutation
- Surface-mount technology
- Small size, low cost, ease of use

- Isolated RS232/485 interface for setup and networking
- Field programmable drive firmware
- Windows95/98/2000/ME/NT© based setup software
- Operates in torque or velocity mode

- 6 programmable digital inputs (4 isolated and 2 differential)
- 4 isolated programmable digital outputs
- 2 programmable analog inputs (10-bit)
- 14-bit reference input or programmable analog input
- 1 programmable analog outputs (10-bit)
- Software selectable emulated encoder output resolution*

| Model Number	Low	High
DR101RE30A80LAC	12-bit	14-bit
DR101RE30A80LAC -10	10-bit	12-bit
DR101RE30A80LAC -16	14-bit	16-bit

  * See maximum speed table below

- 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

ADVANCED MOTION CONTROLS
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BLOCK DIAGRAM:
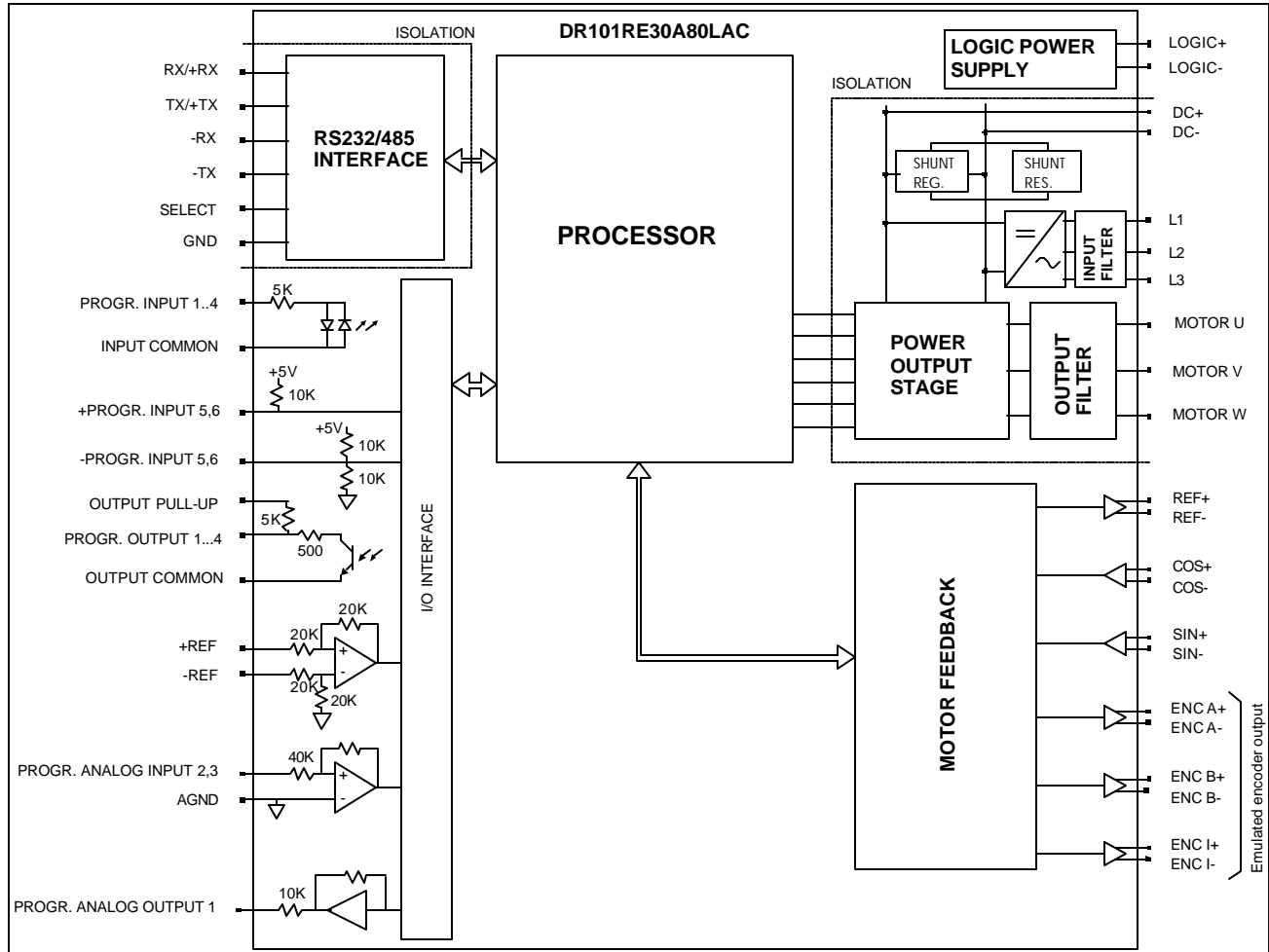
DESCRIPTION:

The DR101RE-LAC Series digital PWM servo drives are designed to drive brushed and brushless servomotors. These fully digital drives operate in torque and velocity 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.

DR101RE-LAC Series drives feature a single, isolated RS232/485 interface, which is used for drive configuration and setup as well as online operation in networked applications. Drive commissioning can be accomplished through a fully graphical Windows© based application.

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

Maximum Motor Velocity

Emulated Encoder Resolution	Maximum Motor Speed*
10-bit	64000 rpm
12-bit	16000 rpm
14-bit	4000 rpm
16-bit	1000 rpm

* Assuming no other limitations limit the motor speed

SPECIFICATIONS:

POWER STAGE SPECIFICATIONS	DR101RE30A80LAC
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
COMMUNICATIONS INTERFACE (RS232/485): CN1*	9-pin female D-sub
I/O CONNECTOR: CN2*	26-pin high density female D-sub
MOTOR FEEDBACK CONNECTOR: CN3*	15-pin high density female D-sub
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+		

CN3 - Motor Feedback Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN3	1	N/C	Not connected	
	2	N/C	Not connected	
	3	N/C	Not connected	
	4	REF+	Resolver reference (excitation) output. 4Vrms @ 5kHz.	O
	5	REF-		O
	6	SIN+	Resolver sine input. 2Vrms	I
	7	SIN-		I

	8	COS+	Resolver cosine input. 2Vrms	I
	9	COS-		I
	10	N/C*	Not connected	
	11	N/C*	Not connected	
	12	SGND	Signal ground	SGND
	13	+5V OUT	+5V @ 250mA max. Short-circuit protected.	O
	14	PAI3	Programmable analog input, single ended, 10-bit	I
	15	N/C*	Not connected	

CN2 – I/O Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN2	1	PDO1	Isolated programmable digital output, 24V @ 50mA max. Referenced to pin 8, Output Common.	O
	2	OUTPUT COMMON	Digital output common.	OGND
	3	PDO2	Isolated programmable digital output, 24V @ 50mA max. Referenced to pin 8, Output Common.	O
	4	+REF	Differential reference signal input, 14-bit resolution. Can also be used as programmable analog input 1.	I
	5	-REF		I
	6	PAI2	Programmable analog input	I
	7	PAO1	Programmable analog output	O
	8	OUTPUT PULL-UP	Digital output pull-up via 5K resistor.	I
	9	-PDI6	See CN2-18	I
	10	PDO3	Isolated programmable digital output, 24V @ 50mA max. Referenced to pin 8, Output Common.	O
	11	PDI1	Isolated programmable digital input, 24V @ 5mA max. Referenced to pin 15, Input Common.	I
	12	PDI2	Isolated programmable digital input, 24V @ 5mA max. Referenced to pin 15, Input Common.	I
	13	PDI3	Isolated programmable digital input, 24V @ 5mA max. Referenced to pin 15, Input Common.	I
	14	PDO4	Isolated programmable digital output, 24V @ 50mA max. Referenced to pin 8, Output Common.	O
	15	Input Common	Digital input common. Can also be used to pull-up digital inputs.	IGND
	16	AGND	Analog ground	AGND
	17	+PDI5	Programmable, differential digital input	I

	18	+PDI6	Programmable, differential digital input	I
	19	PDI4	Isolated programmable digital input, 24V @ 5mA max. Referenced to pin 15, Input Common.	I
	20	Encoder Channel A+	Emulated channel A output. (10, 12, 14, or 16 bit resolution)	O
	21	Encoder Channel A-		O
	22	Encoder Channel B+	Emulated channel B output. (10, 12, 14, or 16 bit resolution)	O
	23	Encoder Channel B-		O
	24	Encoder Channel I+	Emulated index output. High when channel A and B or both low.	O
	25	Encoder Channel I-		O
	26	-PDI5	See CN2-17	I

CN1 - Communications Interface (RS232/485):

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
CN1	1	SELECT	RS232/485 selection. Pull to ground (CN1-5) for RS485.	I
	2	TX/+TX	RS232: Transmit; RS485: +TX	O
	3	RX/+RX	RS232: Receive; RS485: +RX	I
	4	N/C	Not connected	
	5	SGND	Signal ground	SGND
	6	-TX	RS485: -TX	O
	7	N/C	Not connected	
	8	-RX	RS485: -RX	I
	9	N/C	Not connected	

ORDERING INFORMATION:

Standard model: DR101RE30A80LACX

X indicates the current revision letter.

MOUNTING DIMENSIONS: