DIGIFLEX® DIGITAL SERVO DRIVES
MODEL: DR101RE15A40NAC (-10, -16)

FEATURES:

- Fully digital, state-of-the-art design
- Space Vector Modulation and vector control technology
- 20kHz Digital current loop with programmable gain settings
- PIDF velocity loop with 100microsecond update rate
- PID + FF position loop with 100 microsecond update rate
- Resolver based commutation
- Surface-mount technology
- Small size, low cost, ease of use

- Isolated RS232/485 interface for setup and networking
- Windows© based setup software with built-in 8-channel digital scope
- Operates in torque, velocity or position mode with programmable gain settings
- Programmable profiling in all modes
- Fully configurable current, voltage, velocity and position limits.
- Step & direction mode for stepper replacement
- Encoder following with programmable gear ratio

- 4 isolated programmable digital inputs
- 2 programmable differential inputs, configurable as step & direction, master encoder, or secondary encoder for dual loop operation
- 4 isolated programmable digital outputs
- 2 programmable analog inputs (10-bit)
- 14-bit reference input or programmable analog input
- 1 programmable analog output (10-bit)
- Software selectable emulated encoder output resolution*

| Model Number	Low	High
DR101RE	12-bit	14-bit
DR101RE… -10	10-bit	12-bit
DR101RE… -16	14-bit	16-bit

  * See maximum speed table below

- Off-line 1 or 3 phase 240VAC operation
- DC bus output
- Four quadrant regenerative operation
- Bi-color LED status indicator
- Extensive built-in protection against:
  - over-voltage (programmable)
  - under-voltage (programmable)
  - short-circuit: phase-phase, phase-ground
  - over-current
  - over-temperature

ADVANCED MOTION CONTROLS
3805 Calle Tecate, Camarillo, CA 93012
Tel: (805) 389-1935, Fax: (805) 389-1165

BLOCK DIAGRAM:
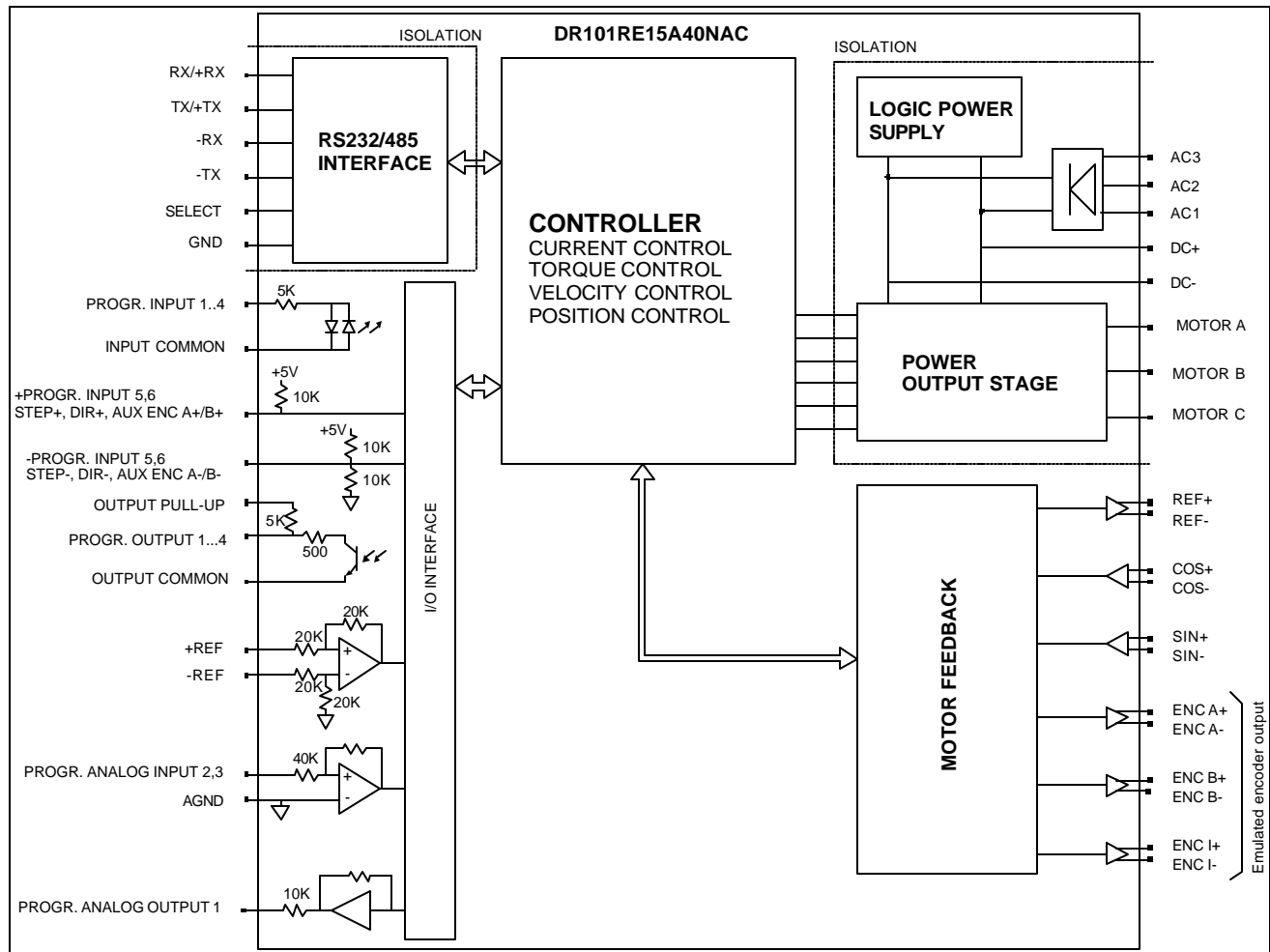
DESCRIPTION:

The DR101RE-NAC Series digital PWM servo drives are designed to drive brushed and brushless servomotors. These fully digital drives operate in torque, velocity, or position 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-NAC Series drives feature a single 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	DR101RE15A40NAC
AC SUPPLY VOLTAGE	40 – 250 VAC, 1 or 3 phase, 50 – 60 Hz
PEAK CURRENT	15A (10.6 Arms)
MAXIMUM CONTINUOUS CURRENT	7.5A (5.3 Arms)
MINIMUM LOAD INDUCTANCE	600 µH
SWITCHING FREQUENCY	20 kHz
HEATSINK (BASEPLATE) TEMPERATURE RANGE	0 to 65 ºC, disables at 65 ºC
POWER DISSIPATION AT CONTINUOUS CURRENT	200W
MIN. UNDER-VOLTAGE SHUTDOWN	55 VDC
MAX. OVER-VOLTAGE SHUTDOWN	395 VDC
BUS CAPACITANCE	660 µF

MECHANICAL SPECIFICATIONS	
MOTOR & POWER CONNECTOR: P1	Removable screw terminal
MOTOR FEEDBACK CONNECTOR: CN3*	15-pin high density female D-sub
I/O CONNECTOR: CN2*	26-pin high density female D-sub
COMMUNICATIONS INTERFACE (RS232/485): CN1*	9-pin female D-sub
SIZE	6.99 x 5.50 x 2.20 inches 177.5 x 139.7 x 55.9 mm
WEIGHT	

* Mating connectors are not included.

PIN FUNCTIONS:

P1 - Motor and Power Connector:

CONNECTOR	PIN	NAME	DESCRIPTION	I/O
P1	1	MA	Motor phase A	O
	2	MB	Motor phase B	O
	3	MC	Motor phase C	O
	4	DC+	External shunt regulator connection	O
	5	DC-		O
	6	AC1	AC supply input. 40 – 250 VAC, single or three phase.	I
	7	AC2		I
	8	AC3		I

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

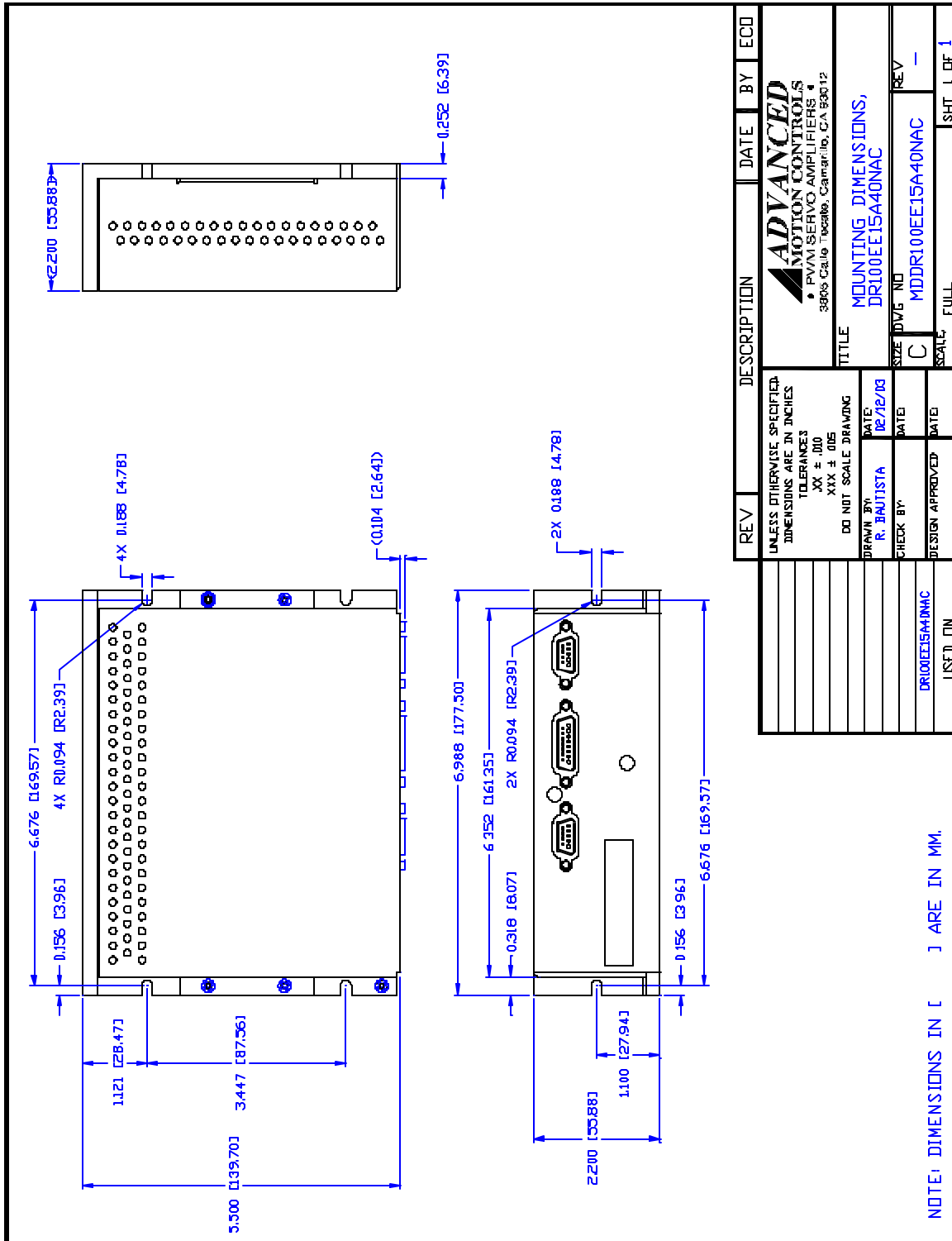| 3	PDO2	Isolated programmable digital output, 24V @ 50mA max. Referenced to pin 8, Output Common.	O
4	+REF	Differential reference signal input, 14-bit resolution. Can also be used as programmable analog input 1.	I
5	-REF		I
6	PAI2	Programmable analog input	I
7	PAO1	Programmable analog output	O
8	OUTPUT PULL-UP	Digital output pull-up via 5K resistor.	I
9	-PDI6	Programmable Input (see CN2-18) or Direction- or Aux Enc B-	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, or Step+ or Aux Enc A+	I
18	+PDI6	Programmable, differential digital input or Direction+ or Aux Enc B+	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	Programmable Input (See CN2-17) or Step- or Aux Enc A-	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: DR101RE15A40LACX

X indicates the current revision letter.

MOUNTING DIMENSIONS:

Mounting dimensions drawing for DR100EE15A40NAC.

TITLE: MOUNTING DIMENSIONS, DR100EE15A40NAC
DWG NO: MDDR100EE15A40NAC
SIZE C
SCALE: FULL
REV —
SHT 1 OF 1

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
XX ± .010
XXX ± .005
DO NOT SCALE DRAWING

DRAWN BY: R. BAUTISTA   DATE: 02/12/03
CHECK BY: DATE:
DESIGN APPROVED: DATE:

USED ON: DR100EE15A40NAC

NOTE: DIMENSIONS IN [   ] ARE IN MM.