

Description

The DZCANTE-010L200 digital servo drive is designed to drive brushed and brushless servomotors from a compact form factor ideal for embedded applications. This fully digital drive operates in torque, velocity, or position mode and employs Space Vector Modulation (SVM), which results in higher bus voltage utilization and reduced heat dissipation compared to traditional PWM. The drive can be configured for a variety of external command signals. Commands can also be configured using the drive's built-in Motion Engine, an internal motion controller used with distributed motion applications. In addition to motor control, this drive features dedicated and programmable digital and analog inputs and outputs to enhance interfacing with external controllers and devices.

The DZCANTE-010L200 features a single RS232 interface used for drive configuration and setup. Drive commissioning is accomplished using DriveWare® 7, available for download at www.a-m-c.com. The CANopen interface can be used for online operation in networked applications.

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

Power Range

Peak Current	10 A (7.1 A _{RMS})
Continuous Current	6 A (6 A _{RMS})
Supply Voltage	40 - 175 VDC


Features

- ▲ Four Quadrant Regenerative Operation
- ▲ Space Vector Modulation (SVM) Technology
- ▲ Fully Digital State-of-the-art Design
- ▲ Programmable Gain Settings
- ▲ Fully Configurable Current, Voltage, Velocity and Position Limits
- ▲ PIDF Velocity Loop
- ▲ PID + FF Position Loop
- ▲ Compact Size, High Power Density
- ▲ 12-bit Analog to Digital Hardware
- ▲ On-the-Fly Mode Switching
- ▲ On-the-Fly Gain Set Switching

MODES OF OPERATION

- Profile Current
- Profile Velocity
- Profile Position
- Cyclic Synchronous Current Mode
- Cyclic Synchronous Velocity Mode
- Cyclic Synchronous Position Mode

COMMAND SOURCE

- ±10 V Analog
- PWM and Direction
- Encoder Following
- Over the Network
- Indexing
- Jogging

FEEDBACK SUPPORTED

- ±10 VDC Position
- Halls
- Incremental Encoder
- Auxiliary Incremental Encoder

INPUTS/OUTPUTS

- 2 High Speed Captures
- 1 Programmable Analog Input (12-bit Resolution)
- 2 Programmable Digital Inputs (Differential)
- 3 Programmable Digital Inputs (Single-Ended)
- 3 Programmable Digital Outputs (Single-Ended)

COMPLIANCES & AGENCY APPROVALS

- UL
- cUL
- CE Class A (LVD)
- CE Class A (EMC)
- RoHS

PIN FUNCTIONS

P1 - Signal Connector				
Pin	Name	Description / Notes	I/O	
1	CAN ADDR 0	CAN Bus Address Selector	I	
2	CAN ADDR 1		I	
3	PAI-1 + (REF+)	Differential Programmable Analog Input or Reference Signal Input (12-bit Resolution)	I	
4	PAI-1 - (REF-)		I	
5	GND	Ground	GND	
6	CAN BAUD	CAN bus bit rate selector.	I	
7	PDO-1	Programmable Digital Output	O	
8	PDO-2	Programmable Digital Output	O	
9	PDO-3	Programmable Digital Output	O	
10	PDI-1	Programmable Digital Input	I	
11	PDI-2	Programmable Digital Input	I	
12	PDI-3 (CAP-A)	Programmable Digital Input or High Speed Capture	I	
13	RS232 RX	Receive Line (RS-232)	I	
14	CAN RX	CAN Receive Line (Requires External Transceiver)	I	
15	RS232 TX	Transmit Line (RS-232)	O	
16	CAN TX	CAN Transmit Line (Requires External Transceiver)	O	
17	PDI-4 + (PWM+ / AUX ENC A+ / CAP-B+)	Programmable Digital Input or PWM or Auxiliary Encoder or High Speed Capture (For Single-Ended Signals see DZ HW Installation Manual)	I	
18	PDI-4 - (PWM- / AUX ENC A- / CAP-B-)		I	
19	PDI-5 + (DIR+ / AUX ENC B+ / CAP-C+)	Programmable Digital Input or Direction or Auxiliary Encoder or High Speed Capture (For Single-Ended Signals see DZ HW Installation Manual)	I	
20	PDI-5 - (DIR- / AUX ENC B- / CAP-C-)		I	
21	GND	Ground	GND	
22	HALL A	Single-ended Commutation Sensor Input (For Differential Inputs See MC1XDZ02 Datasheet For Recommended Signal Conditioning)	I	
23	HALL B		I	
24	HALL C		I	
25	MOT ENC I+	Differential Encoder Index Input (See MC1XDZ02 Datasheet For Recommended Signal Conditioning)	I	
26	MOT ENC I-		I	
27	MOT ENC A+	Differential Encoder A Channel Input (See MC1XDZ02 Datasheet For Recommended Signal Conditioning)	I	
28	MOT ENC A-		I	
29	MOT ENC B+	Differential Encoder B Channel Input (See MC1XDZ02 Datasheet For Recommended Signal Conditioning)	I	
30	MOT ENC B-		I	

P2 - Power Connector				
Pin	Name	Description / Notes	I/O	
1a	LOGIC PWR	Logic Supply Input	I	
	1b	RESERVED	-	
2a	2b	GND	GND	
3a	3b	GND	GND	
4a	4b	HIGH VOLTAGE	I	
5a	5b	HIGH VOLTAGE	I	
6a	6b	RESERVED	-	
7a	7b	MOTOR C	O	
8a	8b	MOTOR C	O	
9a	9b	MOTOR B	O	
10a	10b	MOTOR B	O	
11a	11b	MOTOR A	O	
12a	12b	MOTOR A	O	

Pin Details
CAN ADDR 0 (P1-1)

This pin, CAN ADDR 0, as well as CAN ADDR 1, are used for CAN bus addressing. To set the CAN node address of a drive, use the formula

$$CANAddress = \frac{7 * Addr0}{3} + 8 * \frac{7 * Addr1}{3}$$

where *CANAddress* is the desired node address and *Addr0* and *Addr1* represent the voltage that should be applied to pins CAN ADDR 0 and CAN ADDR 1, respectively. The values for *Addr0* and *Addr1* are always integer multiples of 3/7 V within the range 0-3 V. Examples of the voltages required to set certain node addresses are given in the table below. Note that setting a CAN address of 0 will utilize the address stored in non-volatile memory.

CAN ADDR 0 Value (V)	CAN ADDR 1 Value (V)	CAN ADDR Tolerance (V)	CAN Address (Node #)
0	0	±0.1	Address stored in non-volatile memory
3/7 (0.43)	0	±0.1	1
6/7 (0.86)	0	±0.1	2
9/7 (1.3)	0	±0.1	3
...	...	±0.1	...
18/7 (2.57)	21/7 (3.0)	±0.1	62
21/7 (3.0)	21/7 (3.0)	±0.1	63

CAN BAUD (P1-6)

The CAN bit rate is set by applying the appropriate voltage to the CAN BAUD pin as given in the table below.

CAN BAUD Value (V)	CAN BAUD Tolerance (V)	CAN Bus Bit Rate (bits/s)
0	±0.388	Bit rate stored in non-volatile memory
1	±0.388	500k
2	±0.388	250k
3	±0.388	125k

MECHANICAL INFORMATION

P1 - Signal Connector

Connector Information	30-pin, 2.54 mm spaced, dual-row header	
Mating Connector	Details	Samtec: SSM-115-L-DV
	Included with Drive	No

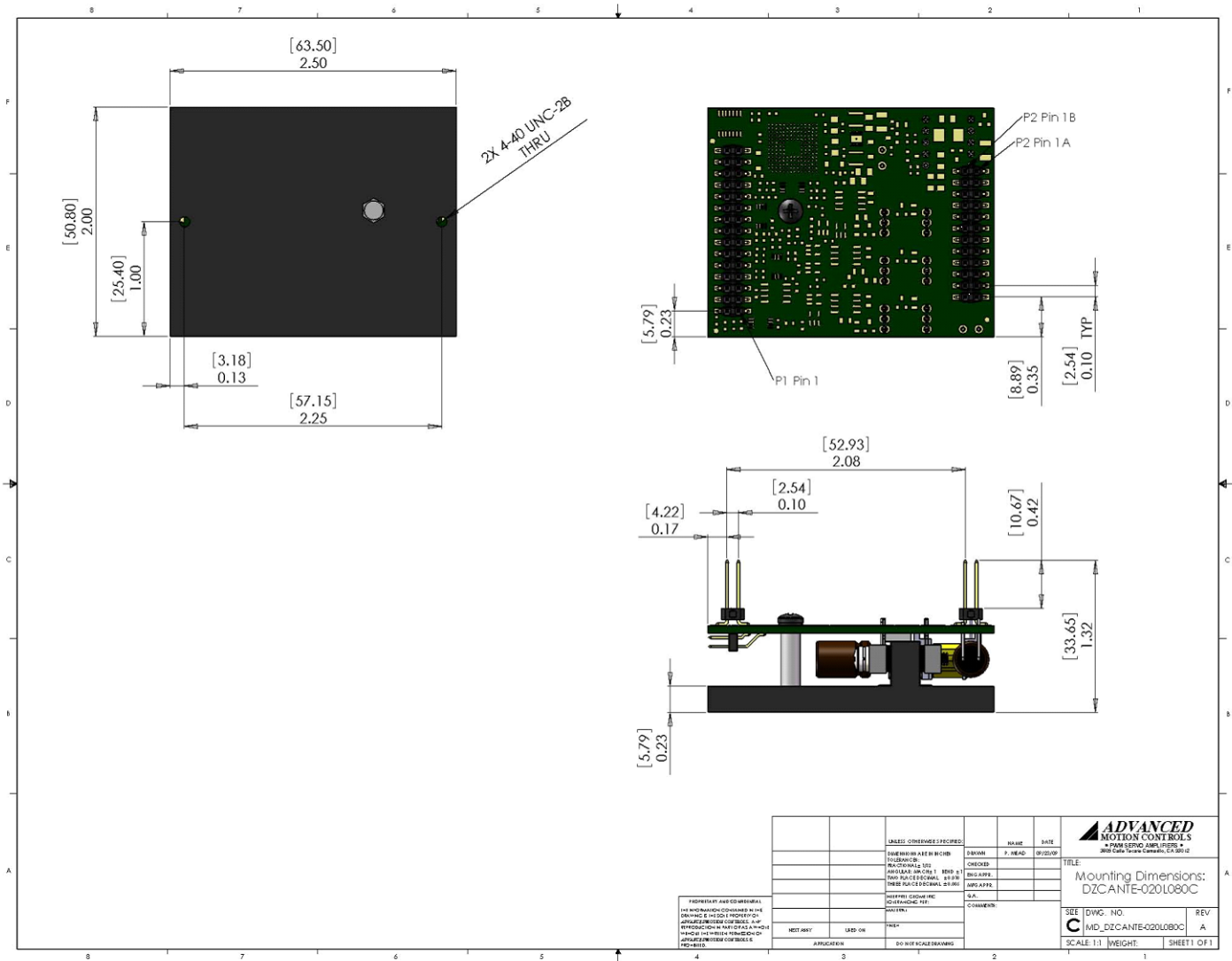
The diagram shows a 30-pin dual-row header. The top row (pins 1-15) includes: 1 CAN ADDR 0, 2 CAN ADDR 1, 3 PAI-1 + (REF+), 4 PAI-1 - (REF-), 5 GND, 6 CAN BAUD, 7 PDO-1, 8 PDO-2, 9 PDO-3, 10 PDI-1, 11 PDI-2, 12 PDI-3 (CAP-A), 13 RS232 RX, 14 CAN RX, 15 RS232 TX. The bottom row (pins 16-30) includes: 16 CAN TX, 17 PDI-4 + (PWM+ / AUX ENC A+ / CAP-B+), 18 PDI-4 - (PWM- / AUX ENC A- / CAP-B-), 19 PDI-5 + (DIR+ / AUX ENC B+ / CAP-C+), 20 PDI-5 - (DIR- / AUX ENC B- / CAP-C-), 21 GND, 22 HALL A, 23 HALL B, 24 HALL C, 25 MOT ENC I+, 26 MOT ENC I-, 27 MOT ENC A+, 28 MOT ENC A-, 29 MOT ENC B+, 30 MOT ENC B-.

P2 - Power Connector

Connector Information	24-pin, 2.54 mm spaced, dual-row header	
Mating Connector	Details	Samtec: BCS-112-L-D-PE
	Included with Drive	No

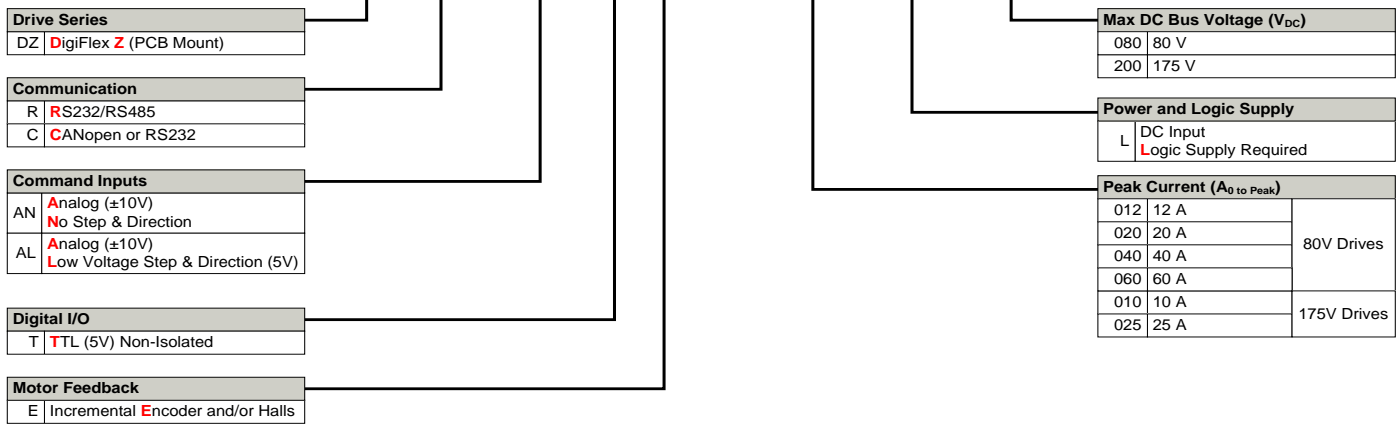
The diagram shows a 24-pin dual-row header. The top row (pins 1-12) includes: 1a LOGIC PWR, 2a GND, 3a GND, 4a HIGH VOLTAGE, 5a HIGH VOLTAGE, 6a GND, 7a MOTOR C, 8a MOTOR C, 9a MOTOR B, 10a MOTOR B, 11a MOTOR A, 12a MOTOR A. The bottom row (pins 13-24) includes: 13b GND, 14b GND, 15b HIGH VOLTAGE, 16b HIGH VOLTAGE, 17b GND, 18b MOTOR C, 19b MOTOR B, 20b MOTOR B, 21b MOTOR A, 22b MOTOR A, 23b GND, 24b GND.

MOUNTING DIMENSIONS



PART NUMBERING INFORMATION

Example: **D Z R A L T E - 0 1 2 L 0 8 0**



DigiFlex® Performance™ series of products are available in many configurations. Note that not all possible part number combinations are offered as standard drives. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability.

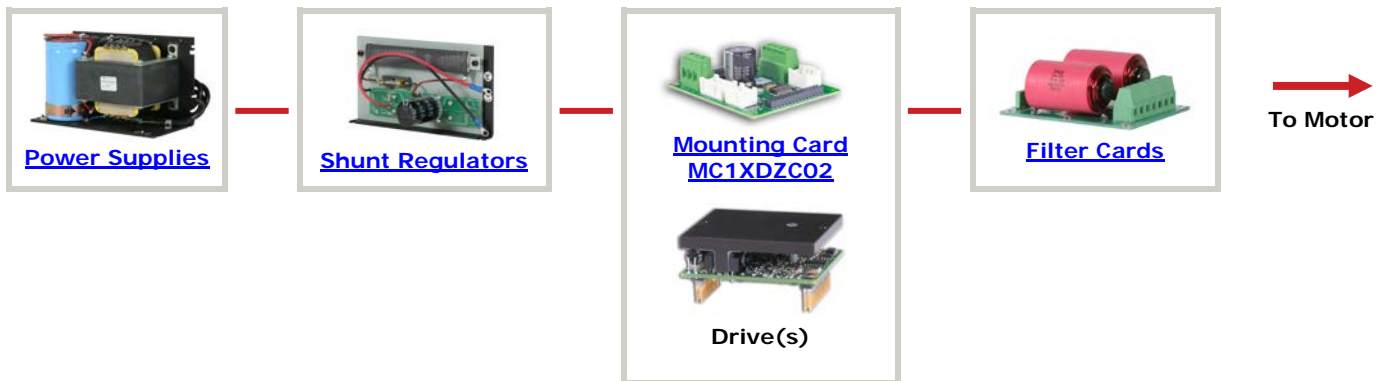
Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Feel free to contact Applications Engineering for further information and details.

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



All specifications in this document are subject to change without written notice. Actual product may differ from pictures provided in this document.