

**Description**

The DZEANTU-020B080 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.

DZEANTU-020B080 drives feature an EtherCAT® interface for network communication using CANopen over EtherCAT (CoE), and USB connectivity for drive configuration and setup. Drive commissioning is accomplished using DriveWare® 7, available for download at [www.a-m-c.com](http://www.a-m-c.com). All drive and motor parameters are stored in non-volatile memory.

The DZEANTU-020B080 also supports *ADVANCED* Motion Controls' exclusive 'DxM' technology which allows connectivity of up to 3 DZSANTU-020B080 drives to a single DZEANTU-020B080 on an EtherCAT network. DZSANTU-020B080 drives receive commands from a DZEANTU-020B080 over a high-speed communication interface, allowing for up to 4 axes of servo drive control from a single EtherCAT connection.

**Power Range**

Peak Current	20 A (14.1 A <sub>RMS</sub> )
Continuous Current	10 A (10 A <sub>RMS</sub> )
Supply Voltage	18 - 80 VDC


**Features**

- ▲ CoE – Based on DSP-402 Device Profile for Drives and Motion Control
- ▲ Synchronization using Distributed Clocks
- ▲ Position Cycle Times down to 100µs
- ▲ Four Quadrant Regenerative Operation
- ▲ 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
- ▲ Supports *ADVANCED* Motion Controls 'DxM' Technology
- ▲ On-the-Fly Mode Switching
- ▲ On-the-Fly Gain Set Switching
- ▲ Space Vector Modulation (SVM) Technology

**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
- Encoder Following
- Over the Network
- Indexing
- Jogging

**COMPLIANCES & AGENCY APPROVALS**

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

**FEEDBACK SUPPORTED (FIRMWARE DEPENDENT)**

- Halls
- Incremental Encoder
- Auxiliary Incremental Encoder
- 1Vp-p Sine/Cosine Encoder
- Absolute Encoder (Heidenhain EnDat® or Stegmann Hiperface®)
- ±10 VDC Position
- Tachometer (±10 VDC)

**INPUTS/OUTPUTS**

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









configuration (reference the DZEANTU Hardware Installation Manual for the recommended wiring diagram, available for download at [www.a-m-c.com](http://www.a-m-c.com)). The LED Function Protocol tables below describe typical LED functionality.

**Communication LEDs Function Protocol**

LINK/ACT LEDES	
LED State	Description
Green – On	Valid Link - No Activity
Green – Flickering	Valid Link - Network Activity
Off	Invalid Link

STATUS LED	
LED State	Description
Green – On	The device is in the state OPERATIONAL
Green – Blinking (2.5Hz – 200ms on and 200ms off)	The device is in the state PRE-OPERATIONAL
Green – Single Flash (200ms flash followed by 1000ms off)	The device is in state SAFE-OPERATIONAL
Green – Flickering (10Hz – 50ms on and 50ms off)	The device is booting and has not yet entered the INIT state or The device is in state BOOTSTRAP or Firmware download operation in progress
Off	The device is in state INIT

ERROR LED		
LED State	Description	Example
Red – On	A PDI Watchdog timeout has occurred.	Application controller is not responding anymore.
Red – Blinking (2.5Hz – 200ms on and 200ms off)	General Configuration Error.	State change commanded by master is impossible due to register or object settings.
Red – Flickering (10Hz – 50ms on and 50ms off)	Booting Error was detected. INIT state reached, but parameter “Change” in the AL status register is set to 0x01:change/error	Checksum Error in Flash Memory.
Red – Single Flash (200ms flash followed by 1000ms off)	The slave device application has changed the EtherCAT state autonomously: Parameter “Change” in the AL status register is set to 0x01:change/error.	Synchronization error; device enters SAFE-OPERATIONAL automatically
Red – Double Flash (Two 200ms flashes separated by 200ms off, followed by 1000ms off)	An application Watchdog timeout has occurred.	Sync Manager Watchdog timeout.

**MECHANICAL INFORMATION**

**P1 - Signal Connector**

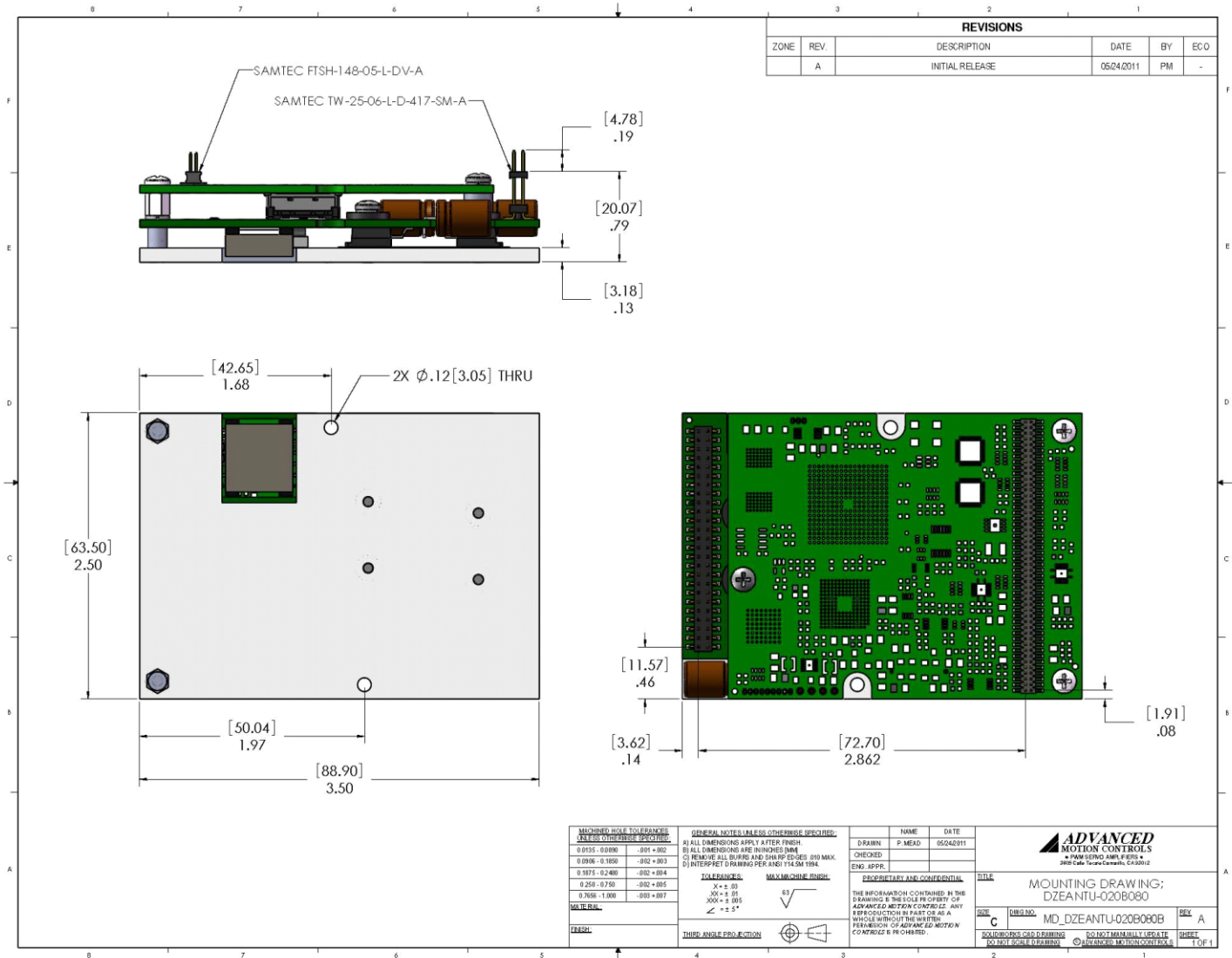
Connector Information		96-pin, 1.27mm spaced, dual-row header
Mating Connector	Details	Samtec: CLP-148-02-F-D-BE-A-K
	Included with Drive	No

**P2 - Power Connector**

Connector Information		50-pin, 2.0mm spaced, dual-row header
Mating Connector	Details	Samtec: CLT-125-02-F-D-BE-A-K
	Included with Drive	No

**MOUNTING DIMENSIONS**



<p><b>ALLOWED HOLE TOLERANCES (UNLESS OTHERWISE SPECIFIED):</b></p> <table border="1"> <tr><td>0.0150 - 0.0800</td><td>-.002 +.002</td></tr> <tr><td>0.0800 - 0.1800</td><td>-.002 +.003</td></tr> <tr><td>0.1875 - 0.2400</td><td>-.002 +.004</td></tr> <tr><td>0.2500 - 0.7500</td><td>-.002 +.005</td></tr> <tr><td>0.7500 - 1.0000</td><td>-.003 +.007</td></tr> </table> <p><b>MATERIAL:</b></p> <p><b>FINISH:</b></p>	0.0150 - 0.0800	-.002 +.002	0.0800 - 0.1800	-.002 +.003	0.1875 - 0.2400	-.002 +.004	0.2500 - 0.7500	-.002 +.005	0.7500 - 1.0000	-.003 +.007	<p><b>GENERAL NOTES (UNLESS OTHERWISE SPECIFIED):</b></p> <p>A) ALL DIMENSIONS APPLY AFTER FINISH          B) ALL DIMENSIONS ARE IN UNLESS SHOWN          C) REMOVE ALL BURRS AND SHARP EDGES 810 MAX.          D) INTERPRET DIMMING PER ANSI Y14.5M 1994</p> <p><b>TOLERANCES: MAX MACHINE FINISH:</b></p> <p>X ± .03          Y ± .01          Z ± .005          &lt; ± 5°</p> <p><b>THIRD ANGLE PROJECTION</b></p>	<table border="1"> <tr><td>NAME</td><td>DATE</td></tr> <tr><td>DRAWN</td><td>P. MEAD 05/24/2011</td></tr> <tr><td>CHECKED</td><td></td></tr> <tr><td>ENG. APPR.</td><td></td></tr> </table> <p><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ADVANCED MOTION CONTROLS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ADVANCED MOTION CONTROLS IS PROHIBITED.</p>	NAME	DATE	DRAWN	P. MEAD 05/24/2011	CHECKED		ENG. APPR.		<p><b>ADVANCED</b> MOTION CONTROLS P.O. Box 97 • Montville, NJ 07045-0097</p> <p><b>TITLE:</b> MOUNTING DRAWING; DZEANTU-020B080</p> <p><b>SIZE:</b> C    <b>REV. NO.:</b> MD_DZEANTU-020B080    <b>REV:</b> A</p> <p><b>SHEET:</b> 1 OF 1</p>
0.0150 - 0.0800	-.002 +.002																				
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0.1875 - 0.2400	-.002 +.004																				
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**PART NUMBERING INFORMATION**

Example:

**D Z E A N T U - 0 2 0 B 0 8 0**

<b>Drive Series</b>	
DZ	DigiFlex Z (PCB Mount)
<b>Communication</b>	
C	CANopen
E	EtherCAT
S	EtherCAT Sub-node
<b>Command Inputs</b>	
AN	Analog (±10V) No Step & Direction
<b>Digital I/O</b>	
T	TTL (5V) Non-Isolated
<b>Motor Feedback</b>	
U	Universal (Halls, Inc. Enc., Abs. Enc., 1Vp-p Sin/Cos Enc.)

<b>Max DC Bus Voltage (V<sub>DC</sub>)</b>	
080	80
<b>Power and Logic Supply</b>	
B	DC Input Both Logic Supply Options (Internal or User)
<b>Peak Current (A<sub>0 to Peak</sub>)</b>	
020	20

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.

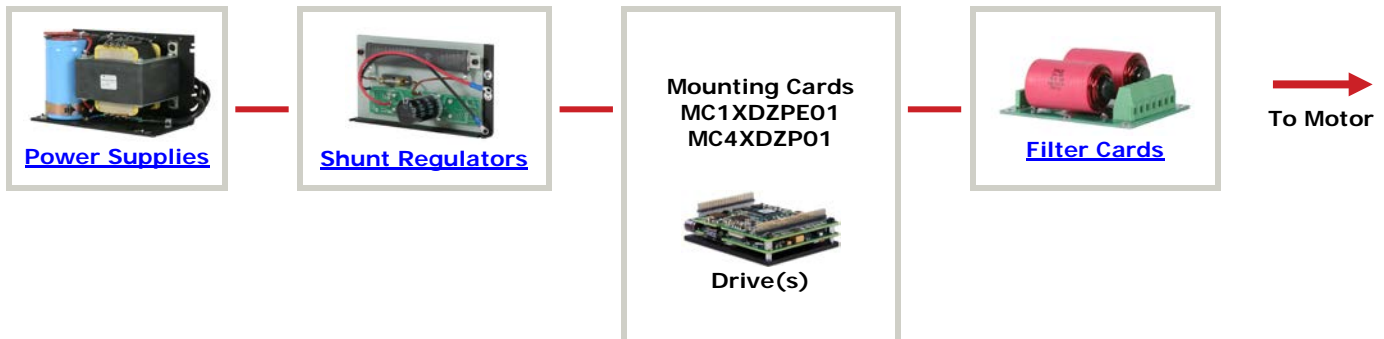
**Examples of Customized Products**

- ▲ 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](http://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.