Description

CZR Series digital servo drives are designed to drive brushed and brushless servo motors, stepper motors and AC induction motors. These all-digital drives operate in torque, speed or position mode and use space vector modulation (SVM) technology. Compared with traditional PWM, it can improve bus voltage utilization and reduce heat dissipation. The drive can be configured to use various external command signals, or the drive's built-in motion engine (internal motion controller for distributed motion applications) can be used to configure commands. In addition to motor control, these drives also have dedicated programmable digital and analog inputs and outputs to enhance the interface with external controllers and devices.

Peak Current	20A(14.1Arms)
Continuos Current	12A(12Arms)
Supply Voltage	10-80 VDC

CZR series drives have the network communication function of RS-485/232 or Modbus RTU, they can all be connected to DriveWare®7 software through RS232 to complete drive debugging and configuration.

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
- On-the-Fly Mode Switching
- On-the-Fly Gain Set Switching
- UL
- cUL
- CE Class A(LVD)
- CE Class A(EMDS)
- RoSH

Note: The certifications and approvals included in the above features are applicable to the internal core drive assembly.

MODES OF OPERATION

- Current
- Velocity
- Position
- Hall Velocity

COMMAND SOURCE

- ±10 V Analog
- PWM and Direction
- 5V Step and Direction
- Encoder Following
- Over the Network
- Sequencing
- Indexing
- Jogging

FEEDBACK SUPPORTED

- ±10 VDC Position
- Halls
- Incremental Encoder
- Auxiliary Incremental Encoder
- Tachometer (±10 VDC)

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)

SPECIFICATIONS

Power Specifications		
Description	**Units**	**Value**
DC Supply Voltage Range	VDC	10-80
DC Bus Over Voltage Limit	VDC	88
DC Bus Under Voltage Limit	VDC	8
Logic Supply Voltage	VDC	18-75(User-supplied or internal to the drive)
Maximum Peak Output Current[1]	A(Arms)	20（14.1）
Maximum Continuous Output Current[2]	A(Arms)	12（12）
Maximum Continuous Output Power	W	912
Maximum Power Dissipation at Continuous Current	W	48
Internal Bus Capacitance	μF	470
Minimum Load Inductance (Line-To-Line) [3]	μH	250(80 V supply); 150(48 V supply); 75(24 V supply); 40(12V supply)
Switching Frequency	KHZ	20
Maximum Output PWM Duty Cycle	%	92
Control Specifications		
Description	**Units**	**Value**
Communication Interfaces	-	RS-485/232 / Modbus RTU
Command Sources	-	±10 V Analog,5V Step and Direction, Encoder Following, Over the Network, PWM and Direction, Sequencing, Indexing, Jogging

Feedback Supported	-	±10 VDC Position, Auxiliary Incremental Encoder, Halls, Incremental Encoder, Tachometer (±10 VDC)
Commutation Methods	-	Sinusoidal, Trapezoidal
Modes of Operation	-	Current, Hall Velocity, Position, Velocity
Motors Supported[4]	-	Three Phase (Brushless Servo), Single Phase (Brushed Servo, Voice Coil, Inductive Load), Stepper (2- or 3-Phase Closed Loop), AC Induction (Closed Loop Vector)
Hardware Protection	-	40+ Configurable Functions, Over Current, Over Temperature (Drive & Motor), Over Voltage, Short Circuit (Phase-Phase & Phase-Ground), Under Voltage
Programmable Digital Inputs/Outputs (PDIs/PDOs)	-	5/3
Programmable Analog Inputs/Outputs (PAIs/PAOs)	-	1/0
Primary I/O Logic Level	-	5V TTL
Current Loop Sample Time	μs	50
Velocity Loop Sample Time	μs	100
Position Loop Sample Time	μs	100
Maximum Encoder Frequency	MHz	20(5 pre-quadrature)
Mechanical Specifications		
Description	**Units**	**Value**
Size (H x W x D)	mm	119×100.5×43
Weight	g	430
Temperature Range[5]	℃	0-75
Storage Temperature Range	℃	-40-85
Cooling System	-	Natural Convection

Note:

1. Capable of supplying drive rated peak current for 2 seconds with 10 second foldback to continuous value.Longer times are possible with lower current limits.

2. Continuous Arms value attainable when RMS Charge-Based Limiting is used.

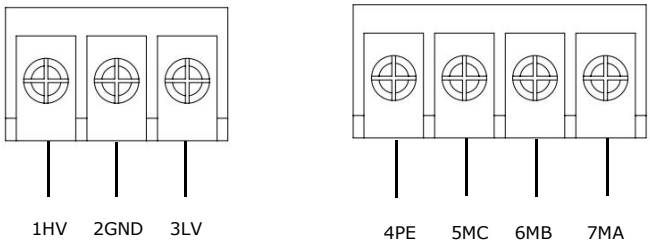
3. Lower inductance is acceptable for bus voltages well below maximum. Use external inductance to meet requirements.

4. Maximum motor speed for stepper motors is 600 RPM. Consult the hardware installation manual for 2-phase stepper wiring configuration.

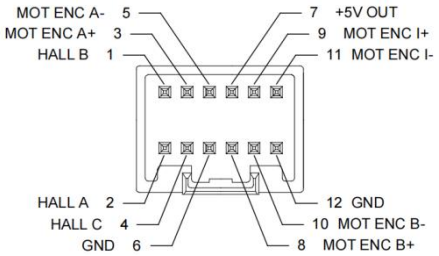
5. Thermal shutdown when PCB temperature reaches 75°C. The base plate temperature at this point may be between 60°C and 75°C depending on rate of base plate cooling (additional heat sinking), ambient temperature, and output current.

PIN FUNCTIONS

POWER AND MOTOR POWER - Power Connector		
Pin	**Name**	**Description / Notes**
1	HV	DC Power Input
2	GND	Power Ground (Common With Signal Ground)
3	LV	Logic Supply Input
4	PE	Protective Earth Ground (motor cable shield)
5	MC	Motor Phase C
6	MB	Motor Phase B
7	MA	Motor Phase A
Connector Information		3+4-port, 9.5 mm spaced, screw terminal
Mating Connector	Model	/
	Included with Drive	No

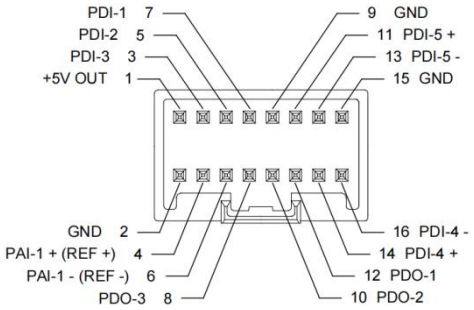


Feedback- Feedback Connector		
Pin	**Name**	**Description / Notes**
1	HALL B	Commutation Sensor Inputs
2	HALL A	Commutation Sensor Inputs
3	MOT ENC A+	Differential Encoder A Channel Input
4	HALL C	Commutation Sensor Inputs
5	MOT ENC A-	Differential Encoder A Channel Input (for single-ended signals use only the positive input)
6	GND	Ground
7	+5V OUTPUT	+5V Encoder Supply Output
8	MOT ENC B+	Differential Encoder B Channel Input
9	MOT ENC I+	Differential Encoder Index Input
10	MOT ENC B-	Differential Encoder B Channel Input (for single-ended signals use only the positive input)
11	MOT ENC I-	Differential Encoder Index Input (for single-ended signals use only the positive input)
12	GND	Ground
Connector Information		12-port, dual-row, 2.00 mm spaced plug terminal, vertical mount
Mating Connector	Model	Molex: P/N 51353-1200 (housing); 56134-9100 (contacts)
	Included with Drive	No

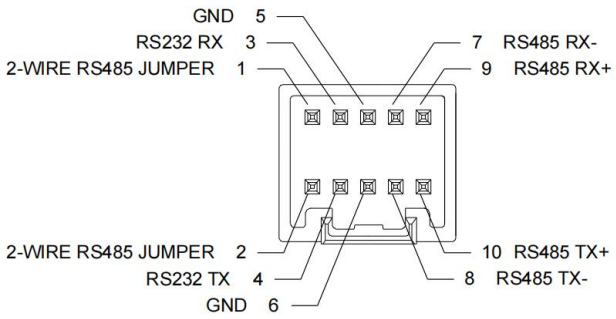


I/O- Signal Connector		
Pin	**Name**	**Description / Notes**
1	+5V OUT	+5V Encoder Supply Output
2	GND	Ground
3	PDI-3	Programmable digital input 3, or High Speed Capture A, or Aux Enc I
4	PAI-1 + (REF +)	Differential reference signal input, 12-bit resolution. Can also be used as programmable analog input 1.
5	PDI-2	Programmable digital input 2
6	PAI-1 - (REF -)	Differential reference signal input, 12-bit resolution. Can also be used as programmable analog input 1.
7	PDI-1	Programmable digital input 1
8	PDO-3	Programmable Digital Input
9	GND	Ground
10	PDO-2	Programmable digital output 2
11	PDI-5 +	Programmable, differential digital input or Direction+ or Aux Enc B+ or Capture C+
12	PDO-1	Programmable digital output 1

13	PDI-5 -	Programmable, differential digital input or Direction- or Aux Enc B- or Capture C-
14	PDI-4 +	Programmable differential digital input, or PWM+ or Step+ or Aux Enc A+ or Capture B+
15	GND	Ground
16	PDI-4 -	Programmable differential digital input, or PWM- or Step- or Aux Enc A- or Capture B-
Connector Information		16-port, dual-row, 2.00 mm spaced plug terminal, vertical mount
Mating Connector	Model	Molex: P/N 51353-1600 (housing); 56134-9100 (contacts)
	Included with Drive	No



Communication Connector		
Pin	**Name**	**Description / Notes**
1	2-WIRE RS485 JUMPER	For RS-485 2-Wire system, attach a jumper between pins 1 and 2. Also attach a jumper between pins 3 and 4.
2	2-WIRE RS485 JUMPER	
3	RS232 RX	RS-232 Receive/Transmit. Connect pin 3 to TX port on PC. Connect pin 4 to RX port on PC. For RS-485 2-Wire system, attach a jumper between pins 3 and 4.
4	RS232 TX	
5	GND	Ground
6	GND	
7	RS485 RX-	Receive Line (RS-485)
8	RS485 TX-	Transmit Line (RS-485)
9	RS485 RX+	Receive Line (RS-485)
10	RS485 TX+	Transmit Line (RS-485)
Connector Information		10-port, dual-row, 2.00 mm spaced plug terminal, vertical mount
Mating Connector	Model	Molex: P/N 51353-1000 (housing); 56134-9100 (contacts)
	Included with Drive	No



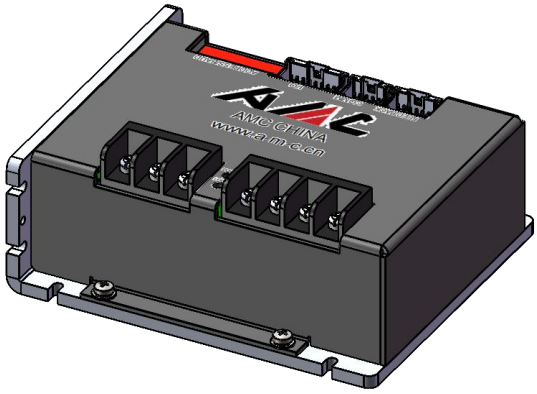
DIP Switch Functions

10 Switch Functions(ADD/BAUD)			
Switch	Description	ON	OFF
1	Bit 0 of binary RS-485/ Modbus RTU node ID.	1	0
2	Bit 1 of binary RS-485/ Modbus RTU node ID.	1	0
3	Bit 2 of binary RS-485/ Modbus RTU node ID.	1	0
4	Bit 3 of binary RS-485/ Modbus RTU node ID.	1	0
5	Bit 4 of binary RS-485/ Modbus RTU node ID.	1	0
6	Bit 5 of binary RS-485/ Modbus RTU node ID.	1	0
7	baud rate setting	125kbits/sec	Load from non-volatile memory
8	RS485 communication selection	RS485	RS232
9	120Ω terminating resistor	Enable the termination resistor between RS485 RX+ and RS485 RX-	/
10	120Ω terminating resistor	Enable the termination resistor between RS485 TX+ and RS485 TX-	/

Note:

1. If all bits controlling the RS-485/Modbus ID are OFF, the ID is based on the settings in the DriveWare software.

MOUNTING DIMENSIONS



PART NUMBERING INFORMATION

Example：C Z R A L T E - 020 B 080-

Drive Series	
CZ	CZ series

Communication	
C	CANopen
E	EtherCAT
S	EtherCAT Sub-node
p	POWERLINK / Modbus
R	RS485 / Modbus RTU

Command Inputs	
AN	Analog (±10V)
	No Step & Direction (5V)
AL	Analog (±10V)
	Low Voltage Step & Direction (5V)

Digital I/O	
I	Isolated (24V)
T	TTL(5V) Non-Isolated

Motor Feedback	
E	Incremental Encoder
R	Resolver
A	Absolute sin/cos (Hiperface & Endat)
S	Sin/cos and/or Halls
U	Universal (Halls, Inc. Enc., Abs. Enc, 1Vp-p Sin/Cos Enc.)

Peak Current (A)	
008	8
012	12
015	15
020	20
025	25
040	40
060	60

Power and Logic Supply	
B	DC Input Both Logic Supply Options (Internal or User)

Max DC Bus Voltage	
080	80
200	175

Customization*

*: AMC China provides customized services for extended , please contact local distributors.