

INDUSTRIAL AUTOMATION PRODUCT

DDM3U-1-320V-30A-SR

MC4U Universal Single-Axis PWM Drive

Regulates one motor phase-current set through the MC4U digital current loop, converting the 24 to 320 V DC bus into controlled PWM motor power while reporting supply, current and thermal faults.

IDENTITY	VERIFIED VALUE
Manufacturer	ACS
System family	ACS MC4U control module
Part number	DDM3U-1-320V-30A-SR
Country	USA
HS code	8537101190

APTER POWER SALES TEAM

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Technical Specifications

Technical values below are limited to the named ACS product record.

PARAMETER	VALUE
Part number	DDM3U-1-320V-30A-SR
Number of axes	1
DC bus voltage	24 to 320 V DC +/-10%
Phase current, sine amplitude	30 A continuous / 60 A peak
Phase current, RMS	21.2 A continuous / 42.4 A peak
Peak-current duration	1 s
Maximum drive output voltage	0.88 x DC-bus voltage, phase-to-phase
Input power at 320 V DC	7.0 kW continuous / 13.4 kW peak
Output power at 320 V DC	6.8 kW continuous / 12.8 kW peak
Minimum load inductance at 320 V DC	0.5 mH
Heat dissipation at continuous output	235 W
Current-control method	Digital field-oriented control with space-vector modulation

PARAMETER	VALUE
Current-ripple frequency	40 kHz
Current-loop sampling rate	20 kHz
Programmable current-loop bandwidth	Up to 5 kHz
Commutation	Sinusoidal; with or without Hall sensors
PWM method	Advanced unipolar PWM
Control supply	24 V DC +/-10%
Control-supply input power	11.4 W maximum
Control-supply input current	0.6 A maximum at 19 V; 0.48 A nominal at 24 V
Supported motor types	AC servo brushless; DC brush; voice coil; 2/3-phase stepper
Operating temperature	0 to +40 degC
Storage and transport temperature	-25 to +60 degC
Relative humidity	5 to 90%, non-condensing

VERIFIED PRODUCT RECORD

DATA GROUP	VERIFIED VALUE
Installed host / carrier	ACS MC4U control module
Companion hardware	24 to 320 V DC drive supply
Field connection	24 V DC control supply
Primary system function	Controls one axis through a 20 kHz digital current loop
Controlled acceptance duty	Single-axis brushless servo control

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System Role and Architecture

Regulates one motor phase-current set through the MC4U digital current loop, converting the 24 to 320 V DC bus into controlled PWM motor power while reporting supply, current and thermal faults.

FUNCTION 1

Controls one axis through a 20 kHz digital current loop

FUNCTION 2

Supports sinusoidal commutation with or without Hall sensors

FUNCTION 3

Uses space-vector modulation with advanced unipolar PWM

FUNCTION 4

Reports bus, supply, short-circuit, overcurrent and thermal faults

Matched system components

- ACS MC4U control module
- 24 to 320 V DC drive supply
- 24 V DC control supply
- Compatible servo, DC, voice-coil or stepper motor

SYSTEM INTEGRATION RECORD

INTEGRATION ITEM	DOCUMENTED ROLE
Installed host / carrier	ACS MC4U control module
Companion hardware	24 to 320 V DC drive supply
Field connection	24 V DC control supply
Primary system function	Controls one axis through a 20 kHz digital current loop
Controlled acceptance duty	Single-axis brushless servo control

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Applications and Engineering Context

Single-axis brushless servo control

Controls one axis through a 20 kHz digital current loop

DC brush and voice-coil actuation

Supports sinusoidal commutation with or without Hall sensors

Two- or three-phase microstepping

Uses space-vector modulation with advanced unipolar PWM

Synchronized multi-axis machine motion

Reports bus, supply, short-circuit, overcurrent and thermal faults

TECHNICAL NOTE

Isolate both the 24 V control supply and the 24 to 320 V DC drive bus, preserve motor phase and feedback identities, then tune the current loop and verify commutation, direction and all configured fault reactions under controlled conditions.

MODEL-SPECIFIC ACCEPTANCE EVIDENCE

CHECK	ACCEPTANCE CONDITION
Identity	DDM3U-1-320V-30A-SR / DDM3U-1-320V-30A-SR recorded
Physical interface	ACS MC4U control module
Companion check	24 to 320 V DC drive supply
Functional proof	Controls one axis through a 20 kHz digital current loop
Application test	Single-axis brushless servo control

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Engineering Precautions

1

Verify the complete DDM3U-1-320V-30A-SR part number and its one-axis MC4U position before opening the control module.

2

Isolate the 24 V control supply and the 24 to 320 V DC drive bus, then confirm stored bus energy is discharged before handling conductors.

3

Record motor phase, Hall-sensor and feedback assignments before disconnecting the installed drive.

4

Use ESD controls and protect the MC4U card-edge and power interfaces from contamination or mechanical loading.

5

Confirm that the connected motor and load provide at least the documented 0.5 mH inductance at the 320 V DC bus condition.

RELATED PRODUCTS ON APTER POWER

MODEL	SYSTEM ROLE	APTER POWER PAGE
6SN1145-1BB00-0FA1	SIMODRIVE 611 infeed/regenerative module	View 6SN1145-1BB00-0FA1 page
6SN1123-1AA00-0EA2	SIMODRIVE 611 single-axis power module	View 6SN1123-1AA00-0EA2 page
6SL3210-1PE31-8AL0	SINAMICS G120 PM240-2 power module	View 6SL3210-1PE31-8AL0 page
6SL3320-1TE33-1AA3	SINAMICS S120 single motor module	View 6SL3320-1TE33-1AA3 page
6SN1123-1AA00-0EA1	SIMODRIVE 611 one-axis power module	View 6SN1123-1AA00-0EA1 page
6SL3210-1PE31-8UL0	SINAMICS G120 unfiltered power module	View 6SL3210-1PE31-8UL0 page
6SL3310-1GE35-0AA3	SINAMICS G130 cabinet power module	View 6SL3310-1GE35-0AA3 page
FIO-11	ABB drive analog I/O extension module	View FIO-11 page

MANUFACTURER SOURCE RECORD

ACS Motion Control MC4U PWM Drives Datasheet

4202-80, Rev. 3.1.14.01

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