Copley
Controls
Corp.

The R-Series

Servo Drives for Harsh Environments

Rugged Per

Extended Environmental Capability

The R-Series delivers performance you can trust in the harshest environments. Ruggedized to endure temperature extremes, high humidity, vibration and shock, Copley's proven drive technology finds application in COTS military, nautical, aviation, oil refining and vehicle based systems.

Ambient Temperature	Non-Operating	-50ºC to 85ºC
	Operating	-40ºC to 70ºC
Thermal Shock	Operating	-40ºC to 70ºC in 1 minute
Relative Humidity	Non-Operating	95% non-condensing at 60ºC
	Operating	95% non-condensing at 60ºC
Vibration	Operating	5 Hz to 500 Hz, up to 3.85 g_{rms}
Altitude	Non-Operating	-400 m to 12,200 m
	Operating	-400 m to 5,000 m
Shock	Crash Safety	75 g peak acceleraion
	Operating	40 g peak acceleration

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Design Standards

- MIL-STD-810 Environmental Engineering Considerations and Laboratory Test
- MIL-STD-1275 Characteristics of 28 VDC Electrical Systems in Military Vehicles
- MIL-STD-704 Aircraft, Electric Power Characteristics
- MIL-STD-461 Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
- MIL-STD-1399 Interface Standard for Shipboard Systems
- IEC-60079 Electrical Apparatus for Explosive Gas Atmospheres
- IEC-60068 Environmental Testing

The Copley Edge

- 25 years experience in servos and power systems
- Quality products designed and built in the U.S.A.
- Comprehensive range with custom capability
- ISO 9001:2000 certified
- RoHS compliant
- Agile, responsive R&D and applications team
- Global sales offices and technical support

Control & Communications

R-Series drives incorporate a range of command interfaces and communication channels for system integration flexibility. CANopen, an international standard for motion control, is proven in harsh environments. RS-232/422/485 interfaces enable control via ASCII commands. Step/direction and analog velocity/current command interfaces are ideal for integration into traditional architectures.

Copley distributed control software for CANopen makes system commissioning fast and simple. All network management is taken care of by a few commands linked into your application program.

Copley supports two development environments. Copley Motion Libraries (CML) link into a C++ application program. Copley Motion Objects (CMO) are COM objects that can be used by Visual Basic®, .NET®, and LabVIEW®.

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Installation Flexibility

Copley offers a comprehensive range of digital drives for brushless and brush motors. High power density panel-mount and PCB-mount packages deliver installation flexibility. A complete set of feedback options are provided. Both AC and DC powered versions are available.

Built-In Indexing Capability

Point-and-click to define up to 32 indexes or index sequences. Index sequences can include parameter changes, dwell times and I/O control. Simply select the index/sequence and command GO. Any parameter (e.g. move distance) can be assigned to a register for efficient adjustment by a master controller.

Drive Configuration

Java based CME 2 configuration software is powerful and intuitive. Comprehensive diagnostics, auto-tuning and advanced oscilloscope tools simplify system commissioning. Auto-phasing eliminates time consuming rewire-and-try for feedback connections.

R10

Panel	VAC	Ic	Ip
R10-230-18	100 - 240	6	18
R10-230-36	100 - 240	12	36
R10-230-40	100 - 240	20	40

Analog encoder version: append -S
Resolver version: append -R

Micro Panel	VAC	Ic	Ip
R11-230-02	100 - 240	1	2
R11-230-06	100 - 240	3	6
R11-230-10	100 - 240	5	10

Analog encoder version: append -S
Resolver version: append -R

Control Modes
• Indexer, Point-to-Point, PVT
• Camming, Gearing, Position, Velocity, Torque

Command Interface
• CANopen/DeviceNet
• ASCII and discrete I/O
• Stepper commands
• ±10V position/velocity/torque command
• PWM velocity/torque command
• Master encoder [Gearing/Camming]

Communications
• CANopen/DeviceNet
• RS-232
• RS-422/RS-485

Accessories
• External regen resistors
• External edge filter

Feedback
• Digital quad A/B encoder
• Aux. encoder / encoder out
• Analog sin/cos encoder
• Resolver [option]
• Digital Halls

I/O - Digital
• 11-14 inputs, 4 outputs

Regen
• R10: internal transistor, external resistor
• R11: internal dissipator

Dimensions: mm [in]
• R10: 191 x 140 x 64 [7.5 x 5.5 x 2.5]
• R11: 126 x 90 x 53 [5.0 x 3.5 x 2.1]

R20

Panel	VDC	Ic	Ip
R20-055-18	20 - 55	6	18
R20-090-09	20 - 90	3	9
R20-090-18	20 - 90	6	18
R20-090-36	20 - 90	12	36
R20-180-09	20 - 180	3	9
R20-180-18	20 - 180	6	18

Analog encoder version: append -S

Micro Panel	VDC	Ic	Ip
R21-055-09	20 - 55	3	9
R21-055-18	20 - 55	6	18
R21-090-03	20 - 90	1	3
R21-090-09	20 - 90	3	9
R21-090-12	20 - 90	6	12

Analog encoder version: append -S

Module	VDC	Ic	Ip
R22-055-18	20 - 55	6	18
R22-090-09	20 - 90	3	9
R22-180-09	20 - 180	3	9
R22-180-18	20 - 180	6	18
R22-180-20	20 - 180	10	20
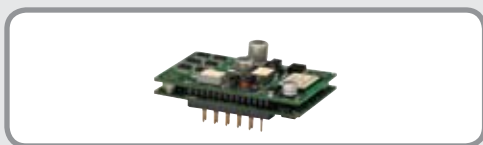
Micro Module	VDC	Ic	Ip
R23-055-06	20 - 55	3	6
R23-090-04	20 - 90	2	4

Control Modes
• Indexer, Point-to-Point, PVT
• Camming, Gearing, Position, Velocity, Torque

Command Interface
• CANopen/DeviceNet
• ASCII and discrete I/O
• Stepper commands
• ±10V position/velocity/torque command
• PWM velocity/torque command
• Master encoder [Gearing/Camming]

Communications
• CANopen/DeviceNet
• RS-232
• RS-422/RS-485 [R20, R21, R22 option]

Feedback
• Digital quad A/B encoder
• Aux. encoder/encoder out [R20, R21]
• Analog sin/cos encoder [R20, R21 option]
• Digital Halls

I/O - Digital
• 8-12 inputs, 2-4 outputs

Dimensions: mm [in]
• R20: 168 x 99 x 31 [6.6 x 3.9 x 1.2]
• R21: 97 x 64 x 33 [3.8 x 2.5 x 1.3]
• R22: 102 x 69 x 25 [4.0 x 2.7 x 1.0]
• R23: 64 x 41 x 16 [2.5 x 1.6 x 0.6]

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