



ORCA-EIP™ Datasheet

EtherNet/IP Adapter

Compatible with ORCA™ Series Smart Linear Motors





Overview

The ORCA-EIP is an industrial Ethernet motor interface built exclusively for the ORCA motor platform, providing deterministic, synchronized EtherNet/IP control within Rockwell automation ecosystems. It serves as a multi-motor communication bridge optimized for ORCA motors' MODBUS RTU over RS-422 architecture.

Unlike general-purpose motion controllers or protocol converters, ORCA-EIP is tightly optimized for ORCA motor communication, with hardware and firmware designed to support deterministic synchronization between PLC and motor axes. It enables high-throughput data handling matched to ORCA communication patterns, reliable coordination of up to four motor axes, and predictable operation under industrial EMI and fault conditions.

Built on a powerful Zynq7000 platform, ORCA-EIP supports deployment in both cabinet-mounted production environments and development or lab settings, providing a single hardware solution from commissioning through production use.

Rather than aiming to be universal, ORCA-EIP delivers highly optimized integration between industrial Ethernet networks and ORCA motors.

System Architecture

Each ORCA-EIP acts as a bridge between the EtherNet/IP control network and up to four ORCA motors.

On the PLC side, ORCA-EIP presents an EtherNet/IP interface for cyclic data exchange and device status. On the ORCA side, it automatically detects and communicates with any ORCA motor model, maintaining a high message rate.

Multiple ORCA-EIP / ORCA motor systems can be chained to provide access to many ORCA motors from an EtherNet/IP network.

Key Features

Protocol Support

- EtherNet/IP (Adapter)
- EDS file supported
- Sample Studio 5000 projects available
- Cyclic I/O data supported
- Acyclic messaging supported

ORCA Motor Support

- Up to 4 ORCA motors
(Modbus RTU w/ custom codes handled internally)

Other Connectivity

- Web-based configuration page (HTTP)
- USB configuration page (IrisControls)
- Fast-Force-Off (e-Stop)

Electrical & Power

- 12–60 VDC input range
- Reverse polarity tolerance
- 12-60 VDC tolerant Fast-Force-Off input

Environmental & Compliance

- -20°C to +50°C operating temperature
- Fanless design
- IEC 61000-6-2 Industrial immunity
- IEC 61000-6-4 Industrial emissions
- RoHS / REACH compliance

Mechanical

- DIN-rail mounting option (side or back)
- Panel mounting option
- Chassis grounding provisions
- Status LEDs for power, network state, motor state, FFO state



Specification

ORCA-EIP

Electrical Specifications

Supply Voltage (DC)	min	10 V	<i>Supply Voltage less than 10V will result in under-voltage lockout</i>
	max	66 V	<i>Exposure to supply voltages exceeding max can cause permanent damage</i>
	typ	12-60 V	
Supply Power	max	7 W	
Power Connector	<i>Pheonix Contact 1778001</i>		
Reverse Polarity	max	-66 V	<i>Self-resetting. Stresses beyond this can cause permanent damage</i>
Overtoltage Protection	<i>Exceeding +/- 66 VDC will open thermal fuse and cause perment damage</i>		
Network Connectors	<i>RJ45 (shielded)</i>		
Recommended Network Cable	<i>Use Cat 5e or better shielded twisted-pair Ethernet cable. Testing was performed using Cat 5e STP cable.</i>		
Device Side Connector	<i>RJ45 (shielded)</i>		

Network Interface

Ethernet Ports	2	<i>Traffic is forwarded between these ports</i>
Ethernet Speed	10/100/1000 BASE-T	<i>Auto-negotiation supported</i>
IP Address Configuration	<i>DHCP by default. Set Static IP on Web Server or using IrisControls</i>	
DLR Support	<i>No, contact sales@irisdynamics.com if required</i>	
Network Status LEDs	<i>Blinking Green: Gigabit link Binking Yellow: 100BASE-T link Blinking Geen and Yellow: 10BASE-T link</i>	

Environment Specification

ESD Tolerance	IEC 61000-4-2	<i>± 8 kV Air; ± 4 kV Contact</i>
Power Surge	IEC 61000-4-5	<i>± 500 V line-to-line</i>
Emissions	IEC 61000-6-4	
Immunity	IEC 61000-6-2	
Ingress Protection	<i>Ingress protection: IP20, indoor / control-cabinet installation</i>	
Operating Temperature	min	-20°C
	max	50°C
Relative Humidity	<i>5–95% RH, non-condensing</i>	

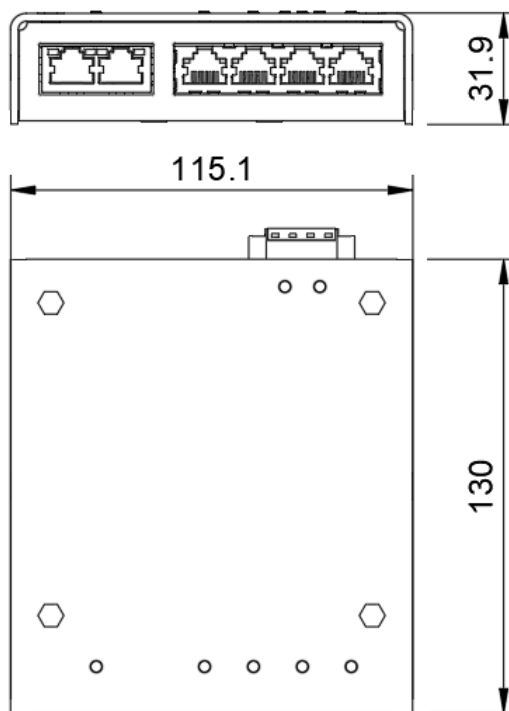
Mechancial Specification

Rear Mounting	2x M4 threaded inserts, 33 mm pitch
Side Mounting	M4 threaded insert (each side)
Dimensions	115 mm x 130 mm x 32 mm
Weight	505 g
Enclosure Top	Anodized Hardcoat Aluminium
Enclosure Base	Powder Coated Stainless Steel
Cooling	Passive, fanless
Install Location	Cabinet, Indoors

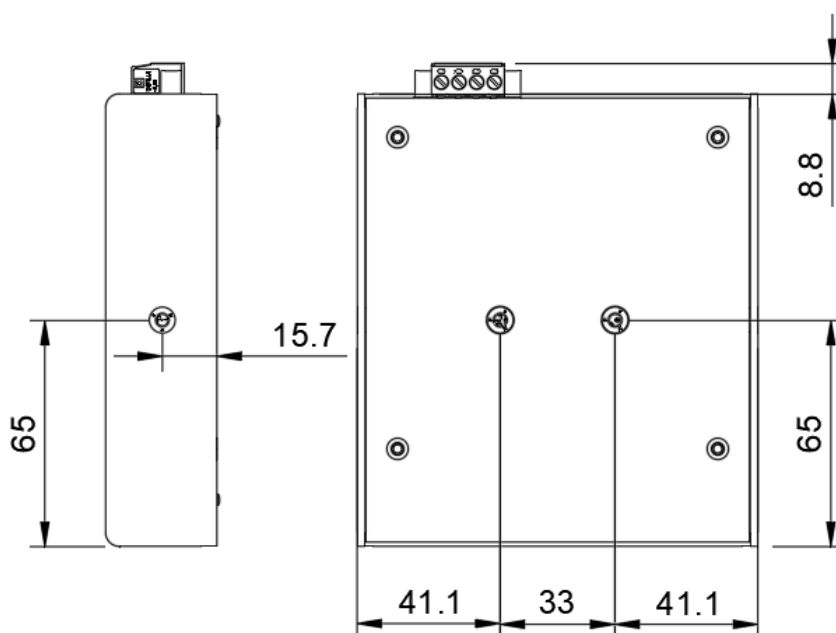


Drawings

All units in mm



Top View



Bottom View



Resources

Further Support

For other documents and support, including:

- Reference Manual
- EDS Files
- Studio5000 examples
- Mechanical CADs
- ORCA motor Information

visit www.irisdynamics.com



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