

Ethernet I/O Card (EIOC)

November 2025

- **Monitoring.** Data values integrated into the EIOC can be used in Control Modules running inside the EIOC. These control modules enable alarm generation, history collection, and visualization by the operator, just like control modules running in a Controller using traditional DeltaV native I/O.
- **Supports Control Functionality.** Function blocks for discrete control and limited PID control are supported for the EIOC. No assignment to a controller is required. Motors, switchgear, variable frequency drives, or any device that communicates via Ethernet protocols can be controlled directly from the EIOC.
- **Easy to Connect to Ethernet Devices.** The EIOC supports Modbus TCP, EtherNet/IP, IEC61850 MMS, OPC UA Client and EtherNet/IP Control Tag Integration Protocols. Use the EIOC Ethernet protocols to connect your DeltaV system to your Ethernet Device Networks.
- **Huge Processing Capacity.** Each EIOC is capable of handling a huge amount of data across up to 2,000 Control Modules.
- **EIOC is part of the DeltaV Control Network.** Up to 60 EIOCs can be added directly to the DeltaV Control Network, providing maximum freedom in segregating your networks.
- **Flexible Networking.** User configurable IP addressing for the Ethernet Device Network allows the EIOC to be deployed in almost any plant environment regardless of the networking scheme. When designing a simplex Ethernet Device Network, consider that the EIOC and the Ethernet Devices must be on the same IP subnet to communicate. Also, when designing a redundant Ethernet Device Network without PRP, consider that the primary and secondary ports in the EIOC must be in different subnets to follow best engineering practices.
- **Easy to Use.** The EIOC is easy to use as it provides a native way to bring Ethernet protocol data into the DeltaV system. Specific ease of use features include:
 - Five different Ethernet Protocols supported in the EIOC. Only one protocol is supported at a time and requires the proper licensing.
 - Updates for the EIOC and drivers are included within DeltaV.
 - Configuration in DeltaV Explorer. All needed configuration for the Ethernet Devices is done in DeltaV Explorer and DeltaV Control Studio, just like Traditional I/O signals. The data can be configured in DeltaV Control Modules, displayed on DeltaV Live and DeltaV Operate graphics, and stored in the DeltaV Continuous Historian.
- **Modular and Easy to add Redundancy.** The dual horizontal carrier hosts all the components needed for a redundant setup (redundant Power input Terminals and redundant Ethernet Isolation ports). Redundancy is achieved just by adding a second EIOC on the dual horizontal carrier. The configuration will change automatically, confirming that the two EIOCs are now working as a redundant pair. Manual switchovers can be controlled in DeltaV Diagnostics. The redundant Ethernet ports provide isolation between DeltaV Control Network communication and the redundant Ethernet Device Network. The EIOC also supports Parallel Redundant Protocol (PRP) for an added layer of robustness, providing a seamless switchover between primary and secondary networks.

Product Description

The EIOC is a big pipe for the integration of process data from 3rd party Ethernet Devices, including PLCs and smart field devices such as Intelligent Field Devices (IFDs) and Intelligent Electronic Devices (IEDs). A network of these Ethernet Devices can be directly connected to the EIOC. Communication between the Ethernet devices and the EIOC is supported through five protocols: Modbus TCP, EtherNet/IP, IEC61850 MMS, OPC UA client and EtherNet/IP Control Tag Integration. The EIOC connects directly into the DeltaV Control Network and can be placed remotely in an enclosure in the field.

The EIOC is an independent embedded data server. This means that there is no need for a separate controller to process the data being integrated into the EIOC. Control Modules needed to process the data from the Ethernet Devices are assigned and executed in the EIOC, enabling fast and direct communication with these devices. Any parameters from the modules running in the EIOC can be read by M-series, S-series, and PK Controllers using External References when needed in control strategies at the controller level.

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Hardware Specifications

Common Environmental Specifications (all components)	
Operating Temperature*	-40 to 70°C (-40 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95%, non-condensing
Protection Rating	IP 20
Airborne Contaminants	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Shock	10 g ½-sine wave for 11 ms
Vibration	1mm Peak-to-Peak from 2 to 13.2 Hz; 0.7g from 13.2 to 150 Hz

*Operating any electronics at the higher end of its temperature range for long periods of time will shorten its expected lifetime, see **Effects of Heat and Airflow Inside an Enclosure White Paper** for more information.

Carrier Specifications

Specifications for Dual Horizontal Carrier	
Capacity	One (simplex) or two (redundant) EIOC
Input Power	+24 VDC ±10% at 1 A maximum
Redundant Ethernet connections via replaceable Ethernet Isolation Ports (EIPs)	Copper twisted pair: 10/100BASE-TX with RJ45 connectors; Full duplex operation – 100 m distance
Mounting	DIN rail latch to horizontally orientated T-type rail

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Ordering Information

Description	Model Number
Simplex Ethernet I/O Card (EIOC) Assembly, (Includes EIOC, Dual Horizontal Carrier, Universal Carrier Protection Cover, 2 Ethernet Isolation Ports for twisted copper, 2 Power Plugs)	SE4100
Redundant Ethernet I/O Card (EIOC) Assembly, (Includes 2 EIOC, Dual Horizontal Carrier, 2 Ethernet Isolation Ports for twisted copper, 2 Power Plugs)	SE4101
MODBUS TCP Interface for Ethernet connected I/O (EIOC)	VE4103
EtherNet/IP Control Tag Integration for Ethernet connected I/O (EIOC)	VE4104
EtherNet/IP Interface for Ethernet connected I/O (EIOC)	VE4105
OPC-UA client for Ethernet connected I/O (EIOC)	VE4106
IEC 61850 MMS Interface for Ethernet connected I/O (EIOC)	VE4107
Ethernet connected I/O (EIOC and PK): nn Physical Devices	VE4109Sxxx

Where xxx and nn is the number of Physical Devices that you want to license in the EIOC. VE4109Sxxx licenses are system wide and can be assigned either to the EIOC or PK Controller. Also, VE4109Sxxx license is additive in the system and therefore you just need to buy more licenses if you want to increase the number of physical devices in the system (there is no scale up license).

EIOC Spare Part Ordering Information

EIOC Spare Parts	
Description	Model Number
Ethernet I/O Card	KL2001X1-BD1
Ethernet Isolation Port for Twisted Copper	KL1604X1-BA1
Dual Horizontal Carrier	KL4104X1-BA1
Universal Carrier Protection Cover	SE6106



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