DeltaV™ 300-series PLC

- Industrial Internet Ready with High Performance
- Simple configuration, maintenance and operation
- Flexible local and remote I/O connectivity over long distances
- High-speed communication for real-time control
- High Availability support for maximum up-time

Introduction

DeltaV™ 300-series Programmable Logic Controllers (PLCs) deliver high-performance control in a modular, scalable platform that combines rack-based PLCs with a broad range of I/O. Designed for demanding hybrid and discrete applications, the 300-series PLC helps users address high-speed machine control, utility systems, and complex discrete automation requirements within a broader DeltaV architecture. The 300-series platform supports system growth while enabling hot swappable modules and high-speed interfaces that maintain continuous operation and consistent access to operational data within DeltaV applications.

The 300-series PLC is engineered for straightforward configuration using PAC Machine Edition[1] and integrates directly into DeltaV using MTP and native DeltaV OPC UA clients. This approach reduces integration effort and enables a more unified control environment across hybrid and discrete applications. By combining flexible hardware, standard engineering tools, and DeltaV connectivity, the platform supports consistent control execution and faster, more direct access to operational data, helping operations respond more quickly, scale with less friction, and maintain control with confidence.

DeltaV 300-series Platform Integration into DeltaV DCS Environment

The DeltaV 300-series PLC platform can be integrated into DeltaV DCS environment in two distinct ways, depending on whether the customer needs PLC-centric control or expanded I/O flexibility.

PLC-centric application integrated into DeltaV DCS Environment:
For brownfield or greenfield applications that require PLC-style execution, including ladder logic, high-speed sequencing, machine control, or utility control, the DeltaV 300-series PLC can be integrated with DeltaV to provide system-level operations, visualization, and coordination. In this configuration, the 300-series PLC is connected to DeltaV via OPC UA using a DeltaV OPC UA Client such as the Ethernet I/O Card (EIOC). Optional MTP support can be used to streamline and facilitate the integration workflow.

[1]PAC Machine Edition (PME) is Emerson's single engineering environment used to configure, program, and maintain DeltaV PLC product lines, including I/Os and related automation components. For more information please referrer to PAC Machine Edition Product Data Sheet.

Rack-based Remote I/O Expansion: When the DeltaV PK controller is the controller of choice, but the application requires a broader I/O mix, flexible deployment form factors, or compatibility with legacy systems, the DeltaV 300-series rack-based remote I/O provides an effective solution. This architecture supports deployment in racks as small as a single card while enabling integration with existing installations. In this configuration, the rack-based remote I/O connects to the DeltaV PK controller via PROFINET.

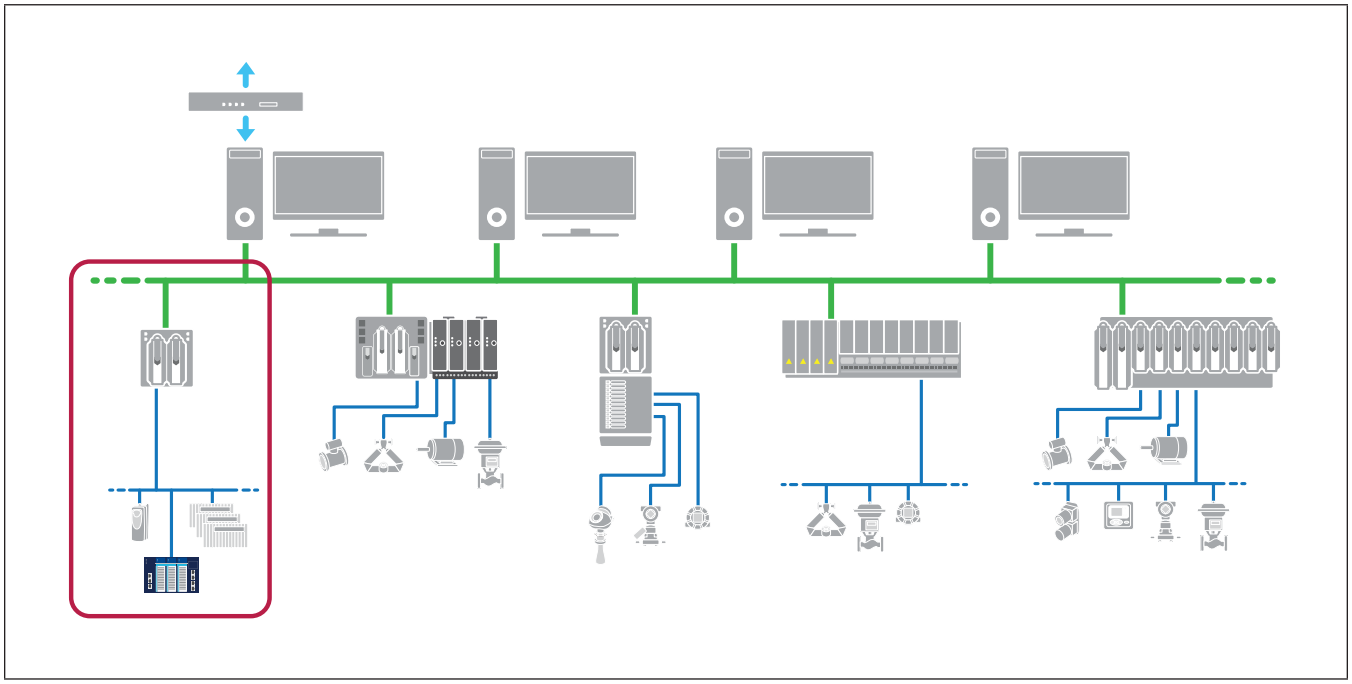
High Performance

Analyze and optimize even the most demanding applications right at the source with the latest DeltaV 300-series PLCs. Featuring multiple processing cores and large high-speed working memory, the 300-series PLCs delivers premier performance and rapid data handling across multi-disciplined control systems. This level of performance is especially valuable in high-speed machine control, sequencing, and complex hybrid automation tasks where responsive execution is critical. Whether accessing consistent gigabit-speed data across the backplane or communicating over fiber across long distances, 300-series PLCs are engineered for fast, reliable execution. As a rack-based solution, 300-series PLC family offers a wide range of digital, analog, and specialty I/O types that are pluggable and hot-swappable, allowing you to tailor the exact mix needed for your application. Supported across various voltage ranges and current capacities, all 300-series I/O operates over high-speed interfaces to ensure rapid, consistent, and dependable data transfer throughout the entire system.

Flexibility and Scalability

With a broad I/O portfolio in addition to communication and specialty modules, the DeltaV 300-series PLC family is built to support a wide range of hybrid and discrete automation applications. Programs transfer into the PAC Machine Edition environment to help get applications running quickly, while flexible I/O pairing supports deployment on the main rack as well as local or remote expansion to additional racks. This makes it easy to scale from small systems to larger installations.

The platform is well suited for applications ranging from OEM skids and utility systems to high-speed machine control and larger hybrid automation deployments. Configurations can start at 8 I/O points and scale to 32,000 points, and backplane options from 7 to 16 slots plus 1-slot expansion modules let you build the right architecture for your application.



Integrating high-speed control, ladder logic, and modular engineering into the DeltaV™ system through the deployment of the DeltaV 300-series PLC with a redundant Ethernet I/O card.

High Availability

The DeltaV 300-series PLC family is designed for applications that demand fast response and high availability even during faults or switchovers. By combining the platform with PROFINET, users can take advantage of gigabit-speed performance and bumpless switchover to help maintain continuous operation. In addition to simplex architectures, 300-series PLCs support redundant designs using Ethernet Global Data (EGD) and PROFINET System Redundancy (PNSR). This makes the 300-series PLC a great fit for critical discrete control applications where uptime, operational continuity, and reliability are essential. The result is a control platform that helps reduce process interruptions and costly downtime, and support reliable operation, even in demanding conditions.

Secure by Design

With defense-in-depth architecture and security built in, the DeltaV 300-series PLC family helps protect critical assets from cyber threats. Technologies such as Trusted Platform Modules (TPM), digitally signed firmware, and pre-installed, pre-licensed OPC UA support secure communications and controlled updates. To add further protection, the 300-series platform is designed to defend against harmful man-in-the-middle and denial-of-service attacks as indicated by Achilles Level 2 Certifications.

Rugged Connector Terminals

The DeltaV 300-series PLC family is designed to simplify commissioning and maintenance with removable terminal blocks on all I/O modules. Support for a wide range of wire gauges, from 0.081 mm2 to 1.5 mm2 (28 to 14 AWG) solid or stranded wire depending on terminal block type, provides flexibility for different installation requirements.

Spring-style and box-style modules are both available, and Terminal Block Quick Connect (TBQC) with positive retention is supported on low-density and high-density terminal blocks to help provide wiring stability and a consistent commissioning experience.

Specifications

DeltaV 300-series PLCs

300-series PLCs

Part No.	IC695CPE305	IC695CPE310	IC695CPE330
Form Factor	Backplane	Backplane	Backplane
User Memory	6MB	13MB	64MB
I/O	■ 32k Bits Discrete I/O ■ 32k Words for Analog I/O	■ 16k Bits Discrete I/O ■ 32k Words for Analog I/O	■ 16k Bits Discrete I/O ■ 32k Words for Analog I/O
Energy Pack*	Included	Included	Available
Redundancy Support	Media Redundancy Protocol (MRP) with PNC001	Media Redundancy Protocol (MRP) with PNC001	■ Media Redundancy Protocol (MRP) ■ PROFINET System Redundancy (PNSR) ■ Media OPC UA NTSR*

Part No.	IC695CPE305	IC695CPE310	IC695CPE330
Ethernet Port	■ 1 - 2 Port switch ■ 10/100/1000	■ 1 - 2 Port switch ■ 10/100/1000	■ 1- 10/100/1000 ■ 1- 2-port switch 10/100/1000
Ethernet Protocols	■ SRTP Client/Server ■ Modbus TCP/IP ■ OPC UA ■ EGD ■ PROFINET** ■ DNP3 Outstation** ■ IEC-61850 Client** ■ IEC-104 Server** ■ HART passthrough	■ SRTP Client/Server ■ Modbus TCP/IP ■ OPC UA ■ EGD ■ PROFINET** ■ DNP3 Outstation** ■ IEC-61850 Client** ■ IEC-104 Server* ■ HART passthrough	■ SRTP Client/Server ■ Modbus TCP/IP ■ OPC UA (Non-Transparent Server Redundancy) ■ EGD ■ PROFINET ■ DNP3 Outstation** ■ IEC-61850 Client** ■ IEC-104 Server** ■ HART passthrough
Serial Protocols	ASCII Serial Modbus/RTU	ASCII Serial Modbus/RTU	ASCII Serial** Modbus/RTU**
Remote I/O Devices	255 Simplex with PNC001	255 Simplex with PNC001	■ 32 Simplex ■ 20 Redundant ■ 255 Simplex with PNC001
USB Interface	1 USB-A 2.0	1 USB-A 2.0	1 USB-A 2.0
Memory Card	-	-	1 CFast (Very high speed Compactflash)***
Other Interface	1 RS-232	■ 1 RS-232 ■ 1 RS-485	-
Environmental	0°C to 60°C (Optional -40°C to +60°C)	0°C to 60°C (Optional -40°C to +60°C)	0°C to 60°C (Optional -40°C to +60°C)
Agency Approvals	UKCA, UL, cUL, RoHS, CCC, FCC, Reach, UL HazLoc C1D2, ATEX Zone 2	UKCA, UL, cUL, RoHS, CCC, FCC, Reach, UL HazLoc C1D2, ATEX Zone 2	UKCA, UL, cUL, RoHS, CCC, FCC, Reach, UL HazLoc C1D2, ATEX Zone 2
Marine	ABS, BV, DNV GL	ABS, BV, DNV GL	ABS, BV, DNV GL

Energy Pack provides power during power failure while data is written to NV RAM
* Non-Transparent Server Redundancy
**Requires additional and separate module
***Available later
****1 USB 2.0 for PREDIX / PACEdge, 1 USB 2.0 for PACSystems (available later)

DeltaV 300-series I/O

Mounting Format

- Panel Mount
- Rack Mount

Network Interfaces

- PROFINET
- Modbus TCP
- Ethernet Global Data (EGD)
- Control Memory Exchange (CMX)
- PROFIBUS DP

Special Function Modules

- Serial Communications
- Modbus RTU
- Modbus TCP
- HART
- GENIUS
- DNP3 Serial/TCP
- IEC-61850
- IEC-104
- Reflective Memory
- PROFIBUS/Master
- CANOpen

Network Redundancy

- Media Redundancy Protocol (MRP)
- Dual LAN

System Redundancy

- PROFINET System Redundancy (PNSR)
- Ethernet Global Data (EGD)

I/O Redundancy

- Via Application Code

Media Support

- Copper
- SM Fiber
- MM Fiber

Media Connector

- 2x RJ45 and 2x SFP

I/O Types

- Digital
- Voltage
- TTL
- Relay
- Analog
- Voltage/Current
- RTD
- Thermocouple
- HART

Specialty Modules

- Pulse Test (24, 125 VDC)
- High Speed Counters
- Pulse With Modulation (PWM)
- Pulse Output
- Power Sync & Measure
- Strain Gauge
- SoE Inputs (application)

Isolation

- Galvanic Isolation
- DI, DO, AI, AO

Hot Swap

- Yes

Environmentals

- IP20
- 0°C to 60°C
- -40°C to 60°C options
- Conformal coat options

Agency Approvals

- UL
- UL HazLoc C1D2
- CE
- ATEX Zone 1

Marine (only select models)

- ABS
- BV
- DNV

Channel Density

- 2 - 32 points

Max Wire Gauge

- 12 (low density)
- 14 (high density)

Max I/O per Drop

- 448

Ordering Information

300-series PLCs

Part Number	Description
Programmable Logic Controllers	
IC695CPE305CA	CPE305 Programmable Logic Controller
IC695CPE310CA	CPE310 Programmable Logic Controller
IC695CPE330CA	CPE330 Programmable Logic Controller
IC695CPK330CA	CPE330 Programmable Logic Controller with Energy Pack
IC695ACC402CA	Energy Pack for CPE330

300 series I/O

Part Number	Description
Power Supplies	
IC695PSD140CADV	Power Supply 24 Vdc 40W Multi-purpose
IC695PSA140CADV	Power Supply 120/240 Vac 125 Vdc 40W Multi-purpose
IC694PWR330CA	Power Supply 120/240 Vac 125 Vdc 30W High-Capacity Serial Expansion
IC694PWR331CA	Power Supply 24 Vdc 30W High-Capacity Serial Expansion
IC695PSD180CADV	Power Supply 24 Vdc 80W Multi-purpose

Discrete Input Modules	
IC694MDL230CA	Input 120 Vac 8-Pt Isolated
IC694MDL240CA	Input 120 Vac 16-Pt
IC694MDL241CA	Input 24 Vac 16-Pt
IC694MDL632CA	Input 125 Vdc 8-Pt Pos/Neg Logic
IC694MDL635CA	Input 125 Vdc 16-Pt Pos/Neg Logic
IC694MDL645CA	Input 24 Vdc 16-Pt Pos/Neg Logic
IC694MDL646CA	Input 24 Vdc 16-Pt Pos/Neg Fast
IC694MDL648CA	Input 48 Vdc 16-Pt Pos/Neg Logic, 1ms filter
IC694MDL654CA	Input 5/12 Vdc (TTL) 32-Pt Pos/Neg Logic
IC694MDL655CA	Input 24 Vdc 32-Pt Pos/Neg Logic
IC694MDL660CA	Input 24 Vdc 32-Pt High-Density
IC695MDL664CA	Input 24 Vdc, 16-Pt, Pos Logic
Discrete Output Modules	
IC694MDL340CA	Output 120 Vac 0.5A 16-Pt
IC694MDL390CA	Output 120/240 Vac 2A 5-Pt Isolated
IC694MDL734CA	Output 125Vdc 1A 6-Pt Isolated Pos/Neg Logic
IC694MDL740CA	Output 12/24Vdc 0.5A 16-Pt Positive Logic
IC694MDL741CA	Output 12/24Vdc 0.5A 16-Pt Negative Logic
IC694MDL742CA	Output 12/24Vdc 1A 16-Pt Positive Logic ESCP
IC694MDL752CA	Output 5/24Vdc (TTL) 0.5A 32-Pt Negative Logic
IC694MDL753CA	Output 12/24Vdc 0.5A 32-Pt Positive Logic
IC694MDL754CA	Output 24Vdc 32-Pt High-Density
IC694MDL758CA	Output 12/24Vdc 0.5A 32-Pt Positive Logic with ESCP per group
IC695MDL765CA	Output 2 Amp 16-Pt Positive Logic
IC694MDL916CA	Output 4 Amp 16-Pt Relay
IC694MDL930CA	Output Relay N.O. 4 A 8-Pt Isolated
IC694MDL940CA	Output Relay N.O. 2 A 16-Pt
Discrete Mixed Modules	
IC694APU300CA	High-Speed Counter Module
IC695HSC304CA	High-Speed Counter Module, 1.5MHz, 8 Inputs, 7 Outputs
IC695HSC308CA	High-Speed Counter Module, 1.5MHz, 16 Inputs, 14 Outputs

Analog Input Modules	
IC695ALG112CA	Analog Input Module, 12 Channel Isolated Voltage/Current
IC694ALG220CA	Input Analog 4pt Voltage
IC694ALG221CA	Input Analog 4pt Current
IC694ALG222CA	Input Analog 16 Single-Ended/8 Differential Voltage
IC694ALG223CA	Input Analog 16 Single-Ended Current
IC694ALG232CA	Input Analog 16 Channel Current
Analog Input Modules	
IC694ALG233CA	Input Analog 16 Channel Voltage
IC695ALG306CA	Isolated Thermocouple Input Module, 6 Channels
IC695ALG312CA	Isolated Thermocouple Input Module, 12 Channels
IC695ALG412CA	Isolated Thermocouple Input Module, 12 Channels
IC695ALG508CA	Isolated RTD Input Module, 8 Channels
IC695ALG600CA	Universal Analog Input Module, Voltage, Current, Resistance, RTD, TC
IC695ALG608CA	Analog Input Module, 8 Channel Non-Isolated / 4 Channel Differential
IC695ALG616CA	Analog Input Module, 16 Channel Non-Isolated / 8 Channel Differential
IC695ALG626CA	Analog Input Module, 16 Channel Non-Isolated / 8 Channel Differential with HART Communications
IC695ALG628CA	Analog Input Module, 8 Channel Non-Isolated / 4 Channel Differential with HART Communications
IC694ALG391CA	Output Analog Current 2 Channels
IC694ALG392CA	Output Analog Current/Voltage 8 Channels
IC695ALG704CA	Output Analog Current/Voltage 4 Channels
IC695ALG708CA	Output Analog Current/Voltage 8 Channels
Analog Output Modules	
IC695ALG728CA	Output Analog Current/Voltage 8 Channels with HART Communications
IC695ALG808CA	Analog Output Current/Voltage 8 Channels, Isolated
IC694ALG391CA	Output Analog Current 2 Channels
IC694ALG392CA	Output Analog Current/Voltage 8 Channels
IC695ALG704CA	Output Analog Current/Voltage 4 Channels
IC695ALG708CA	Output Analog Current/Voltage 8 Channels
IC695ALG728CA	Output Analog Current/Voltage 8 Channels with HART Communications
IC695ALG808CA	Analog Output Current/Voltage 8 Channels, Isolated

Analog Mixed I/O Modules	
IC694ALG442CA	Analog Module, 4-Inputs, 2-Outputs, Current/Voltage
IC694ALG542CA	Analog Module, 4-Inputs, 2-Outputs, Current/Voltage with Advanced Diagnostics
Interface and Special Purpose Modules	
IC695CMM002CA	Serial Communications Module, 2 Ports
IC695CMM004CA	Serial Communications Module, 4 Ports
IC695ECM850CA	IEC 61850 Ethernet Communication Module
IC695EDS001CA	DNP3 Outstation Module
IC695EIS001CA	Ethernet 104 Server Module
IC695ETM001CA	Ethernet Transmitter Module
IC695GCG001CA	Genius Communications Gateway
IC695LRE001CA	Serial Bus Transmitter Module
IC695NIU001CA	Ethernet Network Interface Unit Module
IC695PBM300CA	PROFIBUS Master Module
IC695PBS301CA	PROFIBUS Slave Module
IC695PNC001CA	PROFINET Controller Module
IC695PNS001CA	PROFINET Scanner Module
IC695PNS101CA	PROFINET Scanner Module for Sequence of Events
IC695RMX128CA	Redundancy Memory Xchange Module, Multi-Mode Fiber
Backplanes	
IC695CHS016CA	DeltaV 300-series 16-Slot Universal Backplane
IC695CHS012CA	DeltaV 300-series 12-Slot Universal Backplane
IC695CHS007CA	DeltaV 300-series 7-Slot Universal Backplane
IC695CEP001CA	DeltaV 300-series CEP001 Expansion Carrier with RJ-45 Copper
IC694CHS392CA	DeltaV 300-series 10-Slot Serial Expansion Backplane
IC694CHS398CA	DeltaV 300-series 5-Slot Serial Expansion Backplane
IC694TBS132	Spring clamp style High Density Terminal Block with extended depth for large wires - 36 Connections
IC694TBB132	Box Style High Density Terminal Block with extended depth for large wires - 36 Connections
IC694TBS032	Spring Clamp Style High Density Terminal Block - 36 Connections
IC694TBB032	Box Style High Density Terminal Block - 36 Connections

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