APOLLO
intelligent security solutions

ASP Family

ASP-4 • ASP-2

High Speed Clustering Network Controllers

INTRODUCTION

The new ASP family of devices from Apollo marks an evolution in Access Control hardware. Following 30 years of innovation in systems and hardware, Apollo Security has once again redefined the parameters of Intelligent Security Systems.

The ASP controller range provides a level of flexibility and control not seen in any other devices in the market. Designed from the ground up with Integrators and Software OEMs in mind, ASP devices not only can form the basis for a rock-solid turnkey system, but can be rapidly customized post-factory to perform a huge variety of tasks. Far from being limited to communicating with other Apollo ACS devices, protocols from other devices and networks can be embedded in the ASP allowing it to become a part of the Internet of Things (IoT). The possibilities of interaction are truly endless…

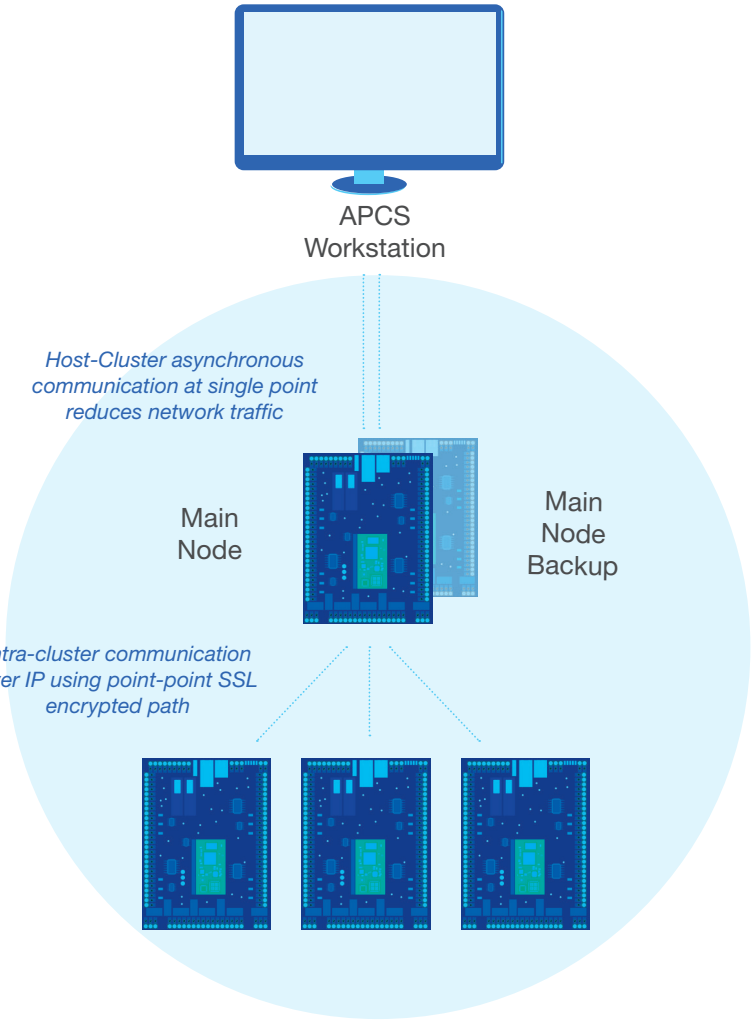
ABOUT APOLLO

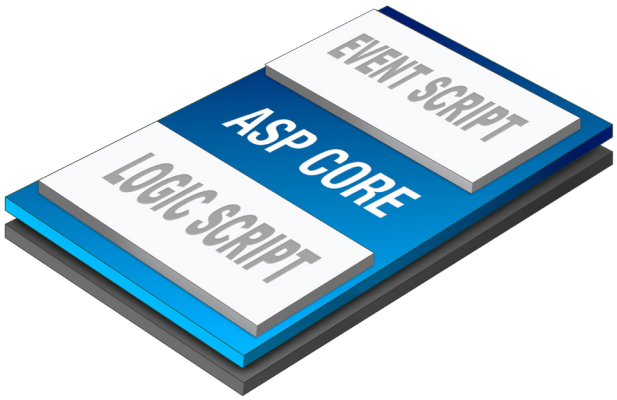
The Apollo Security team has been involved in security since the very first days of modern Access Control Systems. Re-tasking some of the technology developed during the 'Golden Age' of Southern California's Aerospace industry in the 1980s, the founding engineers developed innovative features that are still in use today throughout the industry. Long known for global mission critical hardware and systems, Apollo has still maintained itself as a privately owned company, comfortable in the niche of supplying to high-security, high-volume sites. Apollo hardware and systems protect sites all over the world including nuclear power plants, ports, research facilities, museums, banks, oil & gas facilities, embassies, railways and a host of other sites from virtually every industry.

FEATURES OVERVIEW

The ASP series distinguishes itself by providing two major features that allow construction of **highly integrated, robust device networks**. First, ASP devices work in a **cluster formation** through standard network data linkage, leveraging standard LAN and WAN network infrastructure instead of requiring expensive dedicating wiring. The second feature that allows ASP devices to provide new possibilities is the ability to **embed programs and scripts** directly on the device.

Clustering means that **ASP devices can intercommunicate** through the cluster in order to form a complex system for monitoring and automation. Some of these tasks can be straightforward like opening all doors in the cluster in response to a signal from a fire system on an input of a single ASP. Where most systems would require an input at each device an ASP cluster can use one input for up to 32 devices to perform the same function. Much more complex features are possible as well such as **door access sequencing, advanced Anti-Passback functions and occupancy restrictions/ reactions, threat detection/lockdown** and more. These features relay solely on hardware making them **immune to hard drive failures, operator error, viruses** or other problems that plague systems that rely on PC software.





The ASP Core, built on **Linux operating system**, utilizes a root/user file system allowing the core of the device to run protected and interruptible. However above the core operating system, **users can modify existing functions as well as embed completely new ones** using scripting and embedded programs. This is similar to how the Android operating system works on smartphones, protecting core features while allowing users to customize the device to their own wishes. ASP devices naturally have advanced security features to allow customization and communication only by authorized personnel, requiring **all communications to be SSL secured** and programs be signed by a certificate authority established by the user.

FIRMWARE

The ASP Core is the ‘main control program’ at the heart of controller operations. This code resides in non-volatile industrial grade memory that communicates with the ARM processor of each ASP. These components reside on a SOM (System on Module) chip that functions as a **completely separate unit from peripheral hardware** (reader connections, inputs, outputs, etc.) of the ASP. The SOM does not require any batteries or have a shelf life. Once programmed, the ASP Core as well as configuration information will stay indefinitely in memory allowing easy replacement of hardware peripherals.

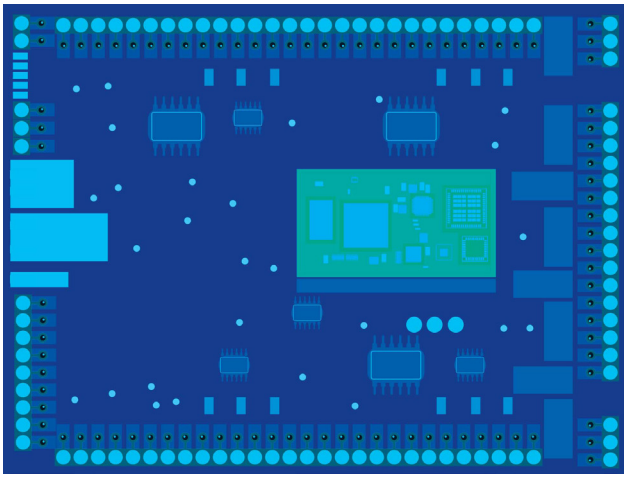
Since it functions independently from peripheral hardware, the ASP Core is more stable as well as configurable. Between the peripherals, controlled by four PIC micro-controllers, and the ASP Core are **scripts that enhance stability by separating hardware processes** and the logic processing in the ARM processor as well as provide a customizable layer. This enabled easy customization of the function of ASP devices by utilizing standard ‘C’ type programming code, easily understood by developers worldwide. No longer are devices tied to esoteric machine code only known by a few. This new, open method of device control pathways **allows integrators or OEMs to develop their own logic processing** while still protecting the base functions of the ASP Core.

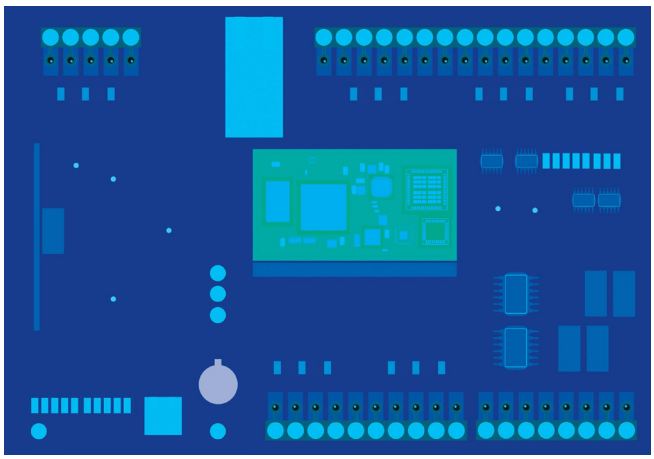
ON-BOARD EMBEDDED

The ASP Family Controllers supports built in Embedded software, you can request an ASP Family Controller with built in Apollo Embedded software ON-BOARD EMBEDDED, when you purchase the ASP controllers.

Apollo ON-BOARD EMBEDDED, is powerful Plug and Play access control package used in conjunction with Apollo ASP-4 four reader and ASP-2 two reader controllers. Access control software located and runs locally on Apollo controllers. Supports a combined total of 16 controllers, 1 primary and 15 secondary controllers that can be connected to the network and supported by a single connection.

No local server is required for loading of access control software. Users can easily configure the system, add cardholders, monitor events and monitor hardware status, and run reports via Web Browser. Native mobile app for iOS and Android is also available for monitoring the system and controlling door modes. Secure communications are supported with HTTPS Web Application.





MULTIPLE FUNCTIONS IN ONE DEVICE

OSDP SERIAL - OSDP devices can be connected to external device ports. Supporting Secure Channel encrypted communication, an extra layer of security and functionality can be added to systems.

PIC - The ASP uses 2 or 4 PIC micro-controllers to manage reach of the 2 or 4 reader interface functions which allows distributed processing in parallel with the main ASP Core ARM Processor. This provides stability and speed for card reader interface functions.

NETWORK - Up to 2 network interfaces allow redundant path communication as well as connection to systems on different networks. Fast downloads mean up to 4x faster downloads than industry standard.

Expandable system - The ASP family can be extended to include more inputs and outputs by using high security relay board such as the **IO21** to support an extra 2 inputs and 1 output that can be located just inches away from the door.

HARDWARE

Running a 1GHz ARM processor, the ASP controller family is the most advanced hardware in the industry. Controllers not only communicate with the Host, store credentials, and make access decisions, but also have onboard interfaces for full-control of multiple doors. Many more I/O and reader interface panels can be connected to the controllers' serial and/or network port for easily expanding the number of doors in the system. Both serial and network communications are fully encrypted. All hardware interfaces are fully configurable (for example, any input can be used as a door contact monitor) and configurations and firmware are field-programmable without needing to physically access the panel.

ASP devices support a variety of technologies in hardware including **Wiegand protocol, Clock and Data** as well as **OSDP Secure Channel** which promises to deliver new flexibility in device connection. Also supported is Apollo's DRS output loop which has provided coded communications to protect strike and relay wiring for over 15 years using **ADA High Security Relay Devices**, this loop can also be used for elevator control relays. Additional hardware upgrades such as **dual Ethernet** and on-board USB increase the flexibility of commutations and elimination of single points of failure.

FEATURES

Clustering

Supports network device-device communication with up to 32 devices in a single cluster. In the cluster one device acts as the Main Node, managing communications between the Client Node. Functions such as Anti-Passback control are managed within the cluster, not requiring connection to PC Software Host. Clusters also support single-point update so there is no need to load configuration or updates to each device as they will be distributed from the main node across the network.

SDK

ASP Devices are equipped with a Native Software Development Kit (SDK) embedded in the ASP Core. It is not necessary to have a separate software layer based on a PC to manage connection to devices. The SDK allows complete control of the configuration and operation in easy to understand programming calls that will be familiar to developers.

Scripting

There are two levels of scripting allowing for complete and rapid customization of ASP devices. User scripting allows access to such functions as event reactions for example sending emails or opening doors based on system state. Logic scripting is also possible for instance to specify that certain criteria must be met before a card can open a door such as a combination of access level, time of day and usage factors.

The second level of scripting is in the protected area of the ASP Core and can be modified with the assistance of Apollo Support Services. This scripting allows deeper control of the core functions of the device and can be used for purposes such as hardware function modification or IoT applications.

Embedded Software

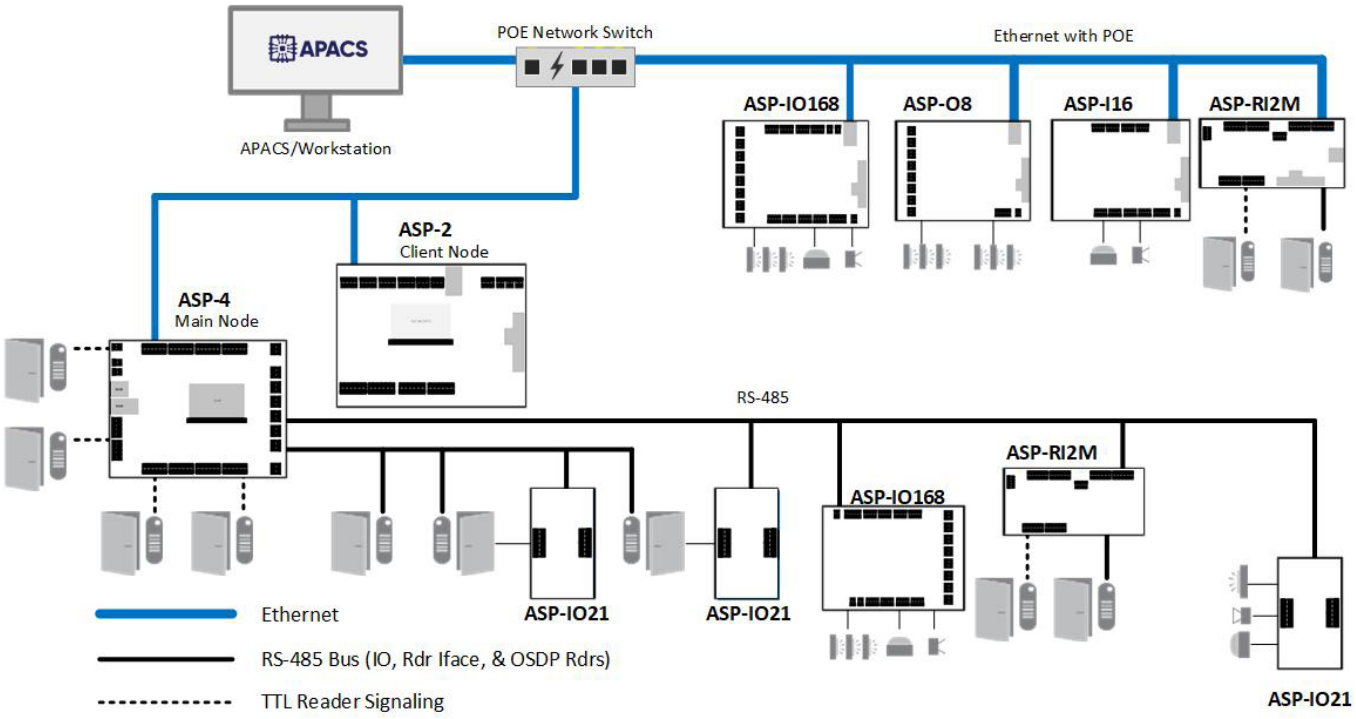
The ASP Core is only the beginning of the ability of your controller. Full software systems can be embedded on ASP devices to seamlessly integrate with any system. Using integration tools, a full web-based access control system can be embedded along with the ASP Core, providing user management, monitoring and reporting. This can be a standalone system or connected with a larger ACS, VMS or PSIM system. Alternately smaller programs can reside on the ASP to provide functions such as advanced control or maintenance or for local management such as visitor management for a device that is connected to a larger enterprise or cloud-based system.

Superior Hardware Quality

Unlike consumer electronics that are built with an expected useful life of a few years, ASP devices are built with industrial rated components that are meant to work in extreme environments and still deliver a long service life. In order to maintain the highest quality control, each ASP is made at Apollo Headquarters in Newport Beach, California. Every device is burned in and tested prior to shipment minimizing on-site failures. Few companies can boast the manufacturing integrity that Apollo simply knows as standard operating procedures.

OSDP

ASP devices support the Open Secure Device Protocol (OSDP) which enables interoperability of next generation access control hardware. This allows connection of standard devices that incorporate reader connections, inputs, outputs, biometric devices and other hardware. As the protocol evolves, these functions can be easily upgraded with network firmware updates, physical access to the device is not required.



SPECIFICATIONS ASP-4

Power Requirements	: +12 to +28Vdc @ 500mA
Dimensions	: 8.2 in. (208.28 mm) W x 6.3 in. (160 mm) L x 1.06 in. (26.93 mm) H
Environment	: Operating Temperature: -40 to 85° C
Storage Temperature	: -40 to 85° C
Relative Humidity	: 0 to 95%, non-condensing
Weight	: 0.8 Lb (.45 Kg)
Communication	: 2 10/100Mbit Ethernet (IPv4/6 support) 2 RS-485 Serial ports, 1 USB 2.0 (reserved for future use)
Inputs	: 16 Supervised Inputs; 1 Unsupervised Tamper
Outputs	: 8 Configurable Outputs

SPECIFICATIONS ASP-2

ower Requirements	: +12 to +24Vdc @ 350mA
Dimensions	: 8 in. (203.2 mm) W x 6 in. (152.4 mm) L x .75 in. (19.05 mm) H
Environment	: Operating Temperature: -40 to 85° C
Storage Temperature	: -40 to 85° C
Relative Humidity	: 0 to 95%, non-condensing
Weight	: 0.6 Lb (.27 Kg)
Communication	: 1 10/100Mbit Ethernet (IPv4/6 support) 2 RS-485
Inputs	: 8 Supervised Inputs; 2 Unsupervised - Tamper & Power Fault
Outputs	: 4 Configurable Outputs

SYTEM FEATURES	
Memory capacity	• 250,000+ cards • up to 100k event buffer • Up to 127 card formats • 300 access levels per controller • 50 access levels per card • 366 holidays
Network configuration	• Cluster up to 32 devices. • Main Node provides central communication point to software host
Communication	• Asynchronous communication with host • No constant polling, on-demand communication as needed.
Encryption	• TLSv1.2, • AES-256:SHA-256 & AES128:SHA • Two way authentication OSDP V1 and V2 with Secure Channel support

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