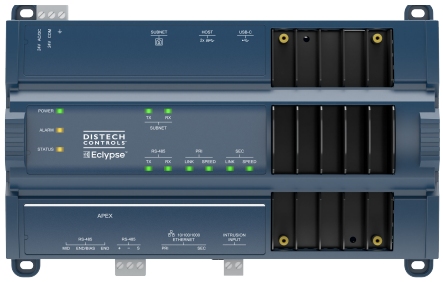
Eclypse™ APEX

Powerful Eclypse controller with advanced IoT and AI capabilities



Overview

The Eclypse APEX is a powerful IoT Edge controller that offers enhanced performance and dedicated spaces to IoT and AI developers. It facilitates HVAC system maintenance, increases efficiency of equipment and optimizes energy consumption by leveraging the latest available technology on site.

Features & Benefits

- Powerful controller with two Ethernet ports (1Gbps each), additional processing power, and large data trending capacity to handle the growing needs of intelligent buildings.
- Eclypse Series input/output and communication modules are supported, providing competitive I/O combinations, and supporting up to 320 I/O points (up 20 I/O modules).
- Secure boot and additional physical security measures are designed to protect the controller from tampering and help overcome today's security challenges.
- Different communication protocols such as BACnet MS/TP, Modbus RTU, Modbus TCP, and M-Bus are supported to ensure ease of communication, authentication, and error detection.
- Embedded RESTful API to exchange data from different applications, such as energy dashboards, analytics tools, and mobile applications, while on premises or from the cloud with the IoT Hub connector.

Developer Tools:

- Available Docker container and Azure IoT Edge technologies extend gateway features at the edge and allow IoT/AI third-party developers to embed advanced processing functionalities.
- On-board AI accelerator, designed to run AI at the edge, adds intelligence to any building and opens the door to new control applications.

Model Selection

Example: ECY-APEX

Series	Description
ECY-APEX	Eclypse APEX with Eclypse Facilities Software. Supports Modbus and BACnet MS/TP and up to 320 I/O points. Includes AI coprocessor. First Edition License, No License Limitations. **Note**: Subnet devices and M-Bus not currently supported.
ECY-APEX-DEMO	Eclypse APEX with Eclypse Facilities Software. Supports Modbus and BACnet MS/TP and up to 320 I/O points. Includes AI coprocessor. This Demo license is not for commercial use. **Note**: Subnet devices and M-Bus not currently supported.
ECY-APEX (Generation 1)	Eclypse APEX with the Eclypse Generation 1 software, without an AI Coprocessor. Supports Modbus and BACnet MS/TP and up to 320 I/O points.
Recommended Limitations: 100 Remote Devices, 5000 Total BACnet Network Values, 1500 BACnet Network Variables Configured in EC-*gfx*Program	

Accessories

Eclypse Wi-Fi Adapter	Wi-Fi Adapter for Eclypse Connected Controllers.
Eclypse Open-To-Wireless™ Adapter	EnOcean communication protocol adapter for Eclypse Connected Controllers.
Eclypse HD15 Cable	6ft (1.8m) cable for multiple-row panel installations. An HD15 cable must always be followed by a power supply module. For more information, refer to the Hardware Installation Guide.
ECx-Subnet-Adapter	Required for daisy-chaining the ECx-Display or the EC-Multi-Sensor with other subnet devices

Product Specifications

Power Supply Input

Input Voltage Range	24VAC/DC; ±15%; Class 2
24VAC Supplied Voltage	Power Consumption: 75VA maximum; internal and external loads included
	Recommended Transformer Size: 100VA
	Frequency Range: 50 to 60Hz
	Power Factor: >90%
or	
24VDC Supplied Voltage	Power Consumption: 75W maximum; internal and external loads included
	Minimum Power Supply Size: 60W
	Startup Inrush Current: 4A for 50ms

Current Limits

Power Supply Input	4A (internal fuse)
I/O Modules	1000mA (18.8W)
Subnet	450mA (8.5W)
USB 3.0	900mA per port
USB 2.0	500mA per port

Communications

Ethernet Connection Speed	10/100/1000 Mbps
Addressing	IPv4 or Hostname
BACnet Profile	BACnet Building Controller (B-BC), AMEV AS-A and AS-B
BACnet Listing	BTL, WSP B-BC (pending)
BACnet Interconnectivity	BBMD forwarding capabilities BACnet MS/TP to BACnet/IP BACnet/SC routing (pending)
BACnet Transport Layer	IP, SC (Node) (pending), and MS/TP (optional)
BACnet MS/TP or Modbus RTU	1x RS-485 serial communications port
Web Server Protocol	HTML5
Web Server Application Interface	REST API
RS-485 Wiring	1 pair + common/shield
RS-485 EOL and Bias Resistor	Slide switch selectable
RS-485 Baud Rates	9600, 19 200, 38 400, or 76 800 bps
Modbus TCP	Devices must be on the same subnet
Wireless Adapter	Optional, USB Port Connection
	Refer to the Eclypse Wi-Fi Adapter Spec Sheet
Ethernet Port Configuration	Switch

Subnetwork

Communication	RS-485
Cable Type	Cat 5e, 8 conductor twisted pair
Connector	RJ-45
Connection Topology	Daisy-chain
Maximum number of standard room devices supported per controller combined[a]	12
Allure EC-Smart-Vue Series[b]	12
Allure EC-Smart-Comfort Series	6
Allure EC-Smart-Air Series[b]	6
EC-Multi Sensor	4
ECx-Light-4 / ECx-Light-4D / ECx-Light-4DALI	2
ECx-Blind-4 / ECx-Blind-4LV / ECx-Blind-4SMI / ECx-Blind-4SMI-LoVo	2
Maximum number of Bluetooth low energy room devices per controller combined [c]	6
Allure Unitouch™	2
EC-Multi-Sensor-BLE	4

[a]For more details about supported quantities, see the Product Selection Tool available in Builder: https://builder.distech-controls.com.

[b]A controller can support a maximum of 2 Allure sensor models equipped with a CO_2 sensor. Any remaining connected sensors must be without a CO_2 sensor.

[c]A mixed architecture with standard room devices and Bluetooth low energy enabled devices is not recommended.

Hardware

Microprocessor	Quad core 1.6 GHz ARM Cortex A53 64 bit
Memory	2GB RAM 32GB Flash (20GB usable)
Real Time Clock (RTC)	Real Time Clock with rechargeable battery Supports SNTP network time synchronization
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles
Ethernet	2x RJ-45 Ethernet ports (10/100/1000 Mbps)
USB Connections	2x USB 3.0 Type-A Ports; 900mA per port 1x USB 2.0 Type-C; Dual role data, 500mA per port
Intrusion Input	Digital (dry contact) – for future use only
AI Coprocessor	Hailo-8 Accelerator Module 6.5 TOPS (tera-operations per second) Available only for the Eclypse APEX with Eclypse Facilities
Subnet	1x RJ-45 connector for subnet bus
Green LED	Power status, Subnet TX, RS-485 TX, and Ethernet Traffic/Speed
Orange LED	Controller status, Alarm, Subnet RX, RS-485 RX, and Ethernet Speed

Environmental

Operating Temperature	32 to 122°F (0 to 50°C)
Storage Temperature	-22 to 158°F (-30 to 70°C),
Relative Humidity	0 to 90% non-condensing
Ingress Protection Rating	IP20
Nema Rating	1

Open-to-Wireless Adapter

Communication Protocol	EnOcean wireless standard[a]
Connector Type	USB
Number of Wireless Inputs	Unlimited[b]

enocean

[a]Available when an optional external Eclypse Open-to-Wireless Adapter is connected to the controller. Refer to the Open-to-Wireless Application Guide for a list of supported EnOcean wireless modules.

[b]Wireless inputs will only be limited by physical distance between the EnOcean devices and the Eclypse Open-to-Wireless Adapter.

Mechanical

Dimensions (H × W × D)	5.54 × 8.52 × 2.30" (216.42 × 140.29 × 58.54mm)
Shipping Weight	1.8lbs (0.82kg)
Mounting	DIN rail or screw mounting
Enclosure Material	Flame retardant/Poly-carbonate (FR/PC)
Enclosure Rating[a]	Plastic housing, UL94-5VB flammability rating

[a]All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive

Standards and Regulations

CE Emission	EN61000-6-3: 2007+A1:2011
CE Immunity	EN61000-6-1: 2007
IEC	IEC 63044-5-1 (2017) IEC 63044-5-2 (2017)
FCC	Compliance with FCC rules part 15, subpart B, class B
ICES Compliance	ICES-003
UL Listed (CDN & US)	UL916 Energy management equipment

Dimensions