



# MATRIX Series

MATRIX-216 | MATRIX-232 | MATRIX-264 | MATRIX-296

## DESCRIPTION

The MATRIX is an IoT (Internet of Things) embedded ASPECT® Control Engine designed to provide flexible site control applications for medium to large scale building automation systems. It can be used to connect with Cylon CB Series and AAM NB Series of BACnet® MS/TP field level controllers. The MATRIX supports serial communications protocols such as BACnet®, AAM PUP, and Modbus®. Additionally, TCP/IP communications using FT/Net, BACnet®, Modbus® and Cylon's Unitron (when used with the UC32.netK) protocols are available when using the RJ-45 connection.

## APPLICATION

A capacity based licensing model makes the MATRIX family of controllers scalable for medium to large buildings applications, including a campus environment when combined with the ASPECT®-Enterprise server software. The MATRIX provides network management and integration of the supported field level RS-485 and TCP/IP communication protocols.

When deployed with embedded ASPECT® Runtime Engine, the MATRIX is capable of supervisory-based control functions including but not limited to energy management routines, custom sequencing, alarm and event annunciation, historical alarming and trending, and master control scheduling. Additionally, streaming of live connected data is displayed rich HTML5 graphics using a web browser.

ASPECT® uses secure web technologies to enrich the user experience through common internet applications for alarm annunciation and scheduling. Receive alarms either from the integrated alarm console or through e-mail clients, or Twitter®. Schedule your building equipment through an integrated scheduler or by using common scheduling platforms such as Microsoft® Outlook®, Apple iCal, Google Calendar™.

### MATRIX-216

**750 Points or 16 Devices** (TCP/IP and/or RS485)  
**32 VSTAT Connections** (Android OS)

### MATRIX-232

**1,250 Points or 32 Devices** (TCP/IP and/or RS485)  
**32 VSTAT Connections** (Android OS)

### MATRIX-264

**1,750 Points or 64 Devices** (TCP/IP and/or RS485)  
**32 VSTAT Connections** (Android OS)

### MATRIX-296

**2,000 Points or 96 Devices** (TCP/IP and/or RS485)  
**32 VSTAT Connections** (Android OS)

### MAT-LP-8 (License Upgrade)

**250 Points or 8 Devices** (TCP/IP and/or RS485)

### PLATFORM MAXIMUMS

**2,500 Points or 128 Devices**  
**64 Devices per RS-485 port**  
**32 VSTAT Connections** (Android OS)

### HARDWARE PLATFORM

**ARM Cortex-A8 @ 1 GHz, 512 MB RAM, 4 GB Flash**  
**One 10/100 MB Ethernet RJ-45 Connection**  
**Two RS-485 ports @ 9K6, 19K2, 38K4, 57K6, 76K8 or 115K2**

### EMBEDDED SOFTWARE

**Operating System: Secure Linux OS**  
**Application: Embedded ASPECT® Runtime Engine**

**DIN-rail mounting**

**Fan-less design**

Product Selection Chart								
Part Number	Device Capacity <sup>1</sup>	Point Capacity <sup>1</sup>	BACnet MSTP and/or IP	Modbus RTU and/or TCP	AAM PUP	Teletrol TSC®	Unitron (using UC32.netK)	VSTAT <sup>2</sup> Connections
MATRIX-216	16	750	✓	✓	✓	✓	✓	32
MATRIX-232	32	1,250	✓	✓	✓	✓	✓	32
MATRIX-264	64	1,750	✓	✓	✓	✓	✓	32
MATRIX-296	96	2,000	✓	✓	✓	✓	✓	32
MAT-LP-8	8	+250	-	-	-	-	-	-
MAT-LIC-CHG <sup>3</sup>	-	-	-	-	-	-	-	-

Note: 1 – MATRIX supports a maximum of 2,500 points and 128 device connections

Note: 2 – VSTAT mobile application runs on Android OS and can be downloaded from Google Play Store.

Note 3: Field upgrades require a MAT-LIC-CHG license.

## SPECIFICATIONS

### Physical

Form Factor DIN Rail mountable  
 Dimensions 17 cm x 16.5 cm x 3.8 cm (6.7" x 6.5" x 1.5")

### Operation

Processor ARM Cortex-A8 1 GHz with embedded Linux OS  
 Memory 512 MB SDRAM, 4 GB flash, 16 GB SD  
 Power Input 24 V AC - 50/60 Hz - 1.35 A max

### Setup & Configuration

Software ASPECT®-Studio  
 Browser Standard web browsers that support HTML5, including: Internet Explorer 8/9/10/11, Firefox, Opera 12, Safari 6, and Google Chrome

### Agency Approvals

Safety CE Approved  
 UL/cUL Listed, Open Energy Management (PAZX/PAZX7), E95642  
 EMC FCC, Class A Computing Device; Part 15  
 BTL B-RTR

### Environmental

Operating temperature 10 °C to 40 °C (50 °F to 104 °F)  
 Relative humidity 0 to 80% RH non-condensing

### Communications

Network 10/100 MB auto-sensing using RJ-45 port  
 Serial Interfaces 2 x RS-485@ 9K6, 38K4, 57K6, 76K8 or 115K2 (default 38K4)  
 Biasing: 3.32k - switch selectable  
 LED indication for TXD, RXD, Byte-Error, Parity-Error  
 Protocol license enforced, driver selectable BACnet MSTP and IP, Modbus TCP and RTU, AAM PUP, Teletrol TSC and Unitron  
 Serial Network Load license enforced, up to 64 devices per RS-485 port