

## TECHNICAL DATA SHEET

DS0111 rev 49

# Cylon® MATRIX Series



## 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-11

750 Points on 1 Device (TCP/IP or RS485)

### MATRIX-216

750 Points or 16 Devices (TCP/IP and/or RS485)

### MATRIX-232

1,250 Points or 32 Devices (TCP/IP and/or RS485)

### MATRIX-264

1,750 Points or 64 Devices (TCP/IP and/or RS485)

### MATRIX-296

2,000 Points or 96 Devices (TCP/IP and/or RS485)

### 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

### 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)
MATRIX-11	1	750	✓	✓	✓	✓	✓
MATRIX-216	16	750	✓	✓	✓	✓	✓
MATRIX-232	32	1,250	✓	✓	✓	✓	✓
MATRIX-264	64	1,750	✓	✓	✓	✓	✓
MATRIX-296	96	2,000	✓	✓	✓	✓	✓
MAT-LP-8	8	+250	-	-	-	-	-
MAT-LIC-CHG <sup>2</sup>	-	-	-	-	-	-	-

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

Note 2: 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, 4 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 (pending)

### 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

# SYSTEM ARCHITECTURE


