COGNEX

COGNEX EXPLORER REAL TIME MONITORING

Facility managers consult a variety of data sources when making decisions about on-site process optimization. Machine vision tools and industrial barcode readers rank as some of the highest producers of data in factory automation and logistics. The data collected by these tools is vital for manufacturers and distribution centers designing and deploying Industry 4.0 environments. For facilities which rely on barcode reading specifically, a wealth of untapped information exists at each scan point. Cognex Explorer™ Real Time Monitoring (RTM) is designed specifically to aggregate and trend data collected by DataMan® image-based barcode readers for immediate and ongoing process improvement.



Optimize your operation

RTM collects, processes, and displays information collected by DataMan barcode readers to help facility managers remove system defects and improve overall equipment efficiency (OEE) and throughput. Access to current and historic key performance indicators makes it simple to analyze productivity, adjust settings, and optimize processes. RTM allows users to see the forest ***and*** the trees, evaluating long-term trends and analyzing specific data points to pinpoint read issues.

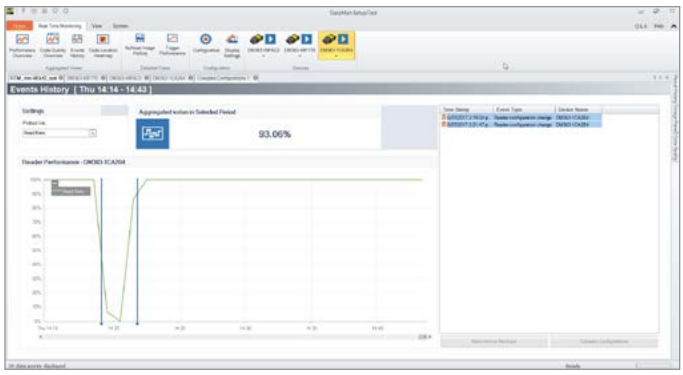
Powerful tools to identify and resolve issues

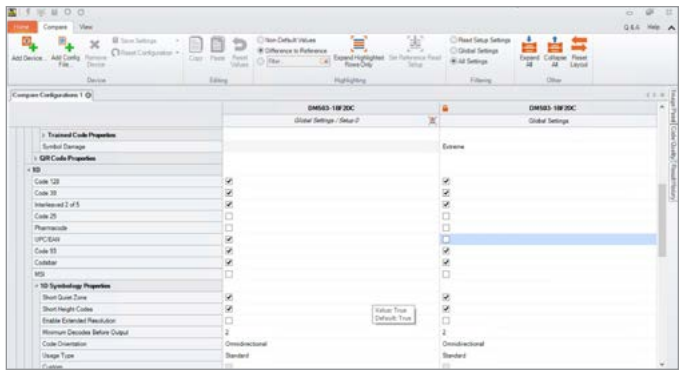
RTM organizes data in easy-to-use dashboards that make it simple to track performance and analyze metrics.

- Overview of facility performance via read rates and throughput over time
- 1-D and 2-D barcode quality metrics identify when code quality drops, signaling that labeling or printing equipment requires attention
- Detailed trigger data including barcode symbology, module size, and decode time
- Automatic collection and root cause analysis of no-reads
- Tracks and compares reader configuration changes
- Heat maps track the relative positions of barcodes to identify required changes in reader configurations

Identify configuration changes to optimize read rates

Often the result of poorly marked codes, no-reads can sometimes be caused by changes to barcode reader configuration settings. RTM tracks historical read rates over days, hours, and minutes to identify changes in read performance. RTM's Events History monitors parameter modifications through an audit trail to identify the root cause of downtime so correct reader configurations can be restored.

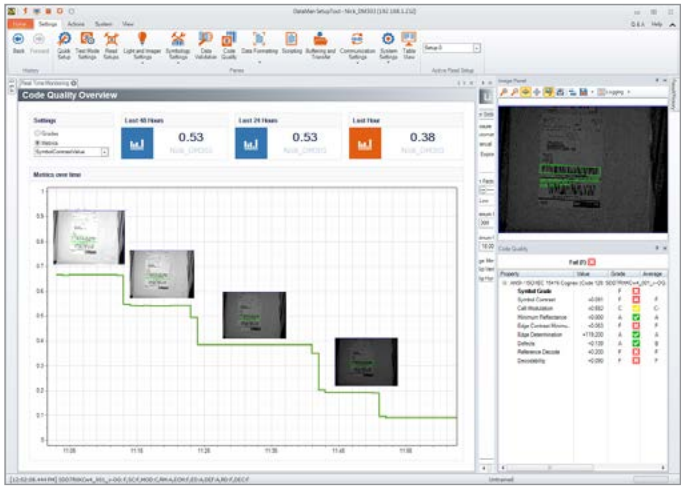


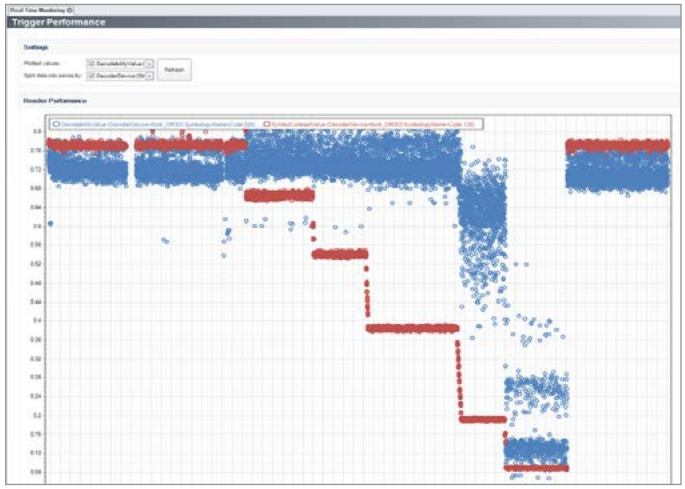


The Events History dashboard above shows 100% read rates of cereal boxes in a fixed location until around 14:19, at which point it drops significantly. RTM's audit trail reveals that the settings were modified, disabling UPC code and resulting in the drop in performance.

Track code quality metrics for continuous improvement

Beginning with a clearly marked code is essential for maximizing read rates and traceability. DataMan readers grade 1-D and 2-D codes according to a set of industry standards via code quality metrics. RTM tracks these grades over time to identify and alert facility managers of code quality issues. Declining code quality indicates an issue with the marking system, signaling for maintenance before codes become unreadable and cause further problems downstream.

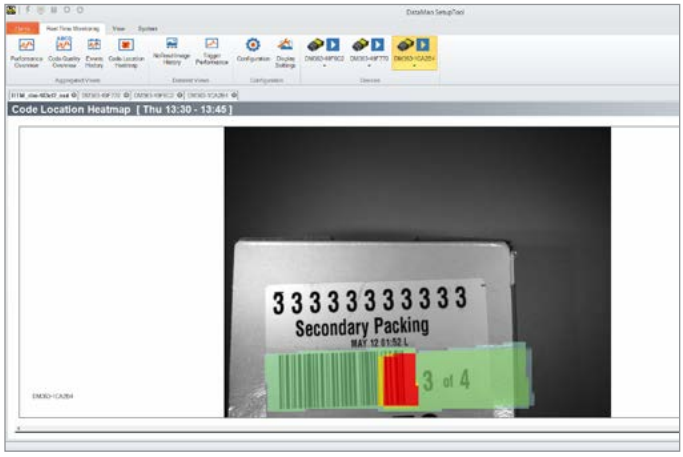


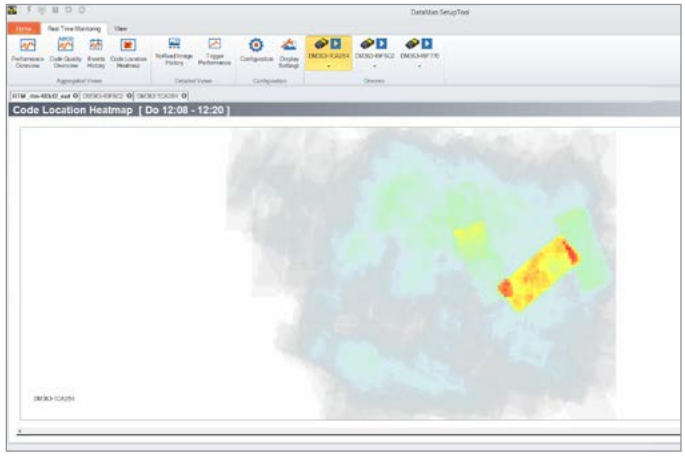


The plot graph above simulates reduced contrast on a printed code. The red data plots the symbol contrast grade against the blue data which represents the readability of the code.

Verify label position to minimize costly manual rework

The RTM heat map feature indicates where reads occur and identifies oddities and underutilized areas in the field of view. Heat maps identify whether a barcode's relative position has changed or if there are obstructions causing read issues.

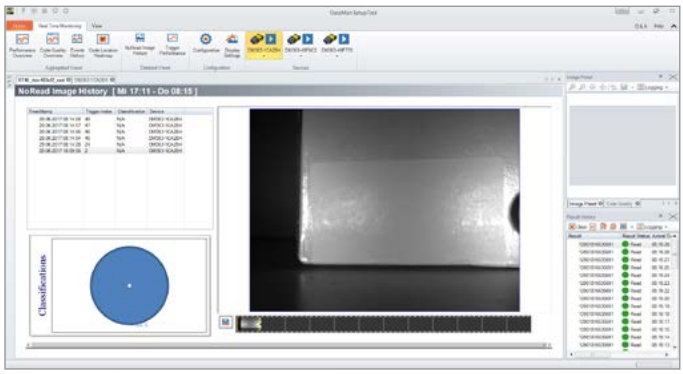




Heat maps can be used to diagnose a number of issues. On the left, the barcode location has shifted out of the optimal position. On right, a heat map identifies underutilized areas within the field of view (FOV).

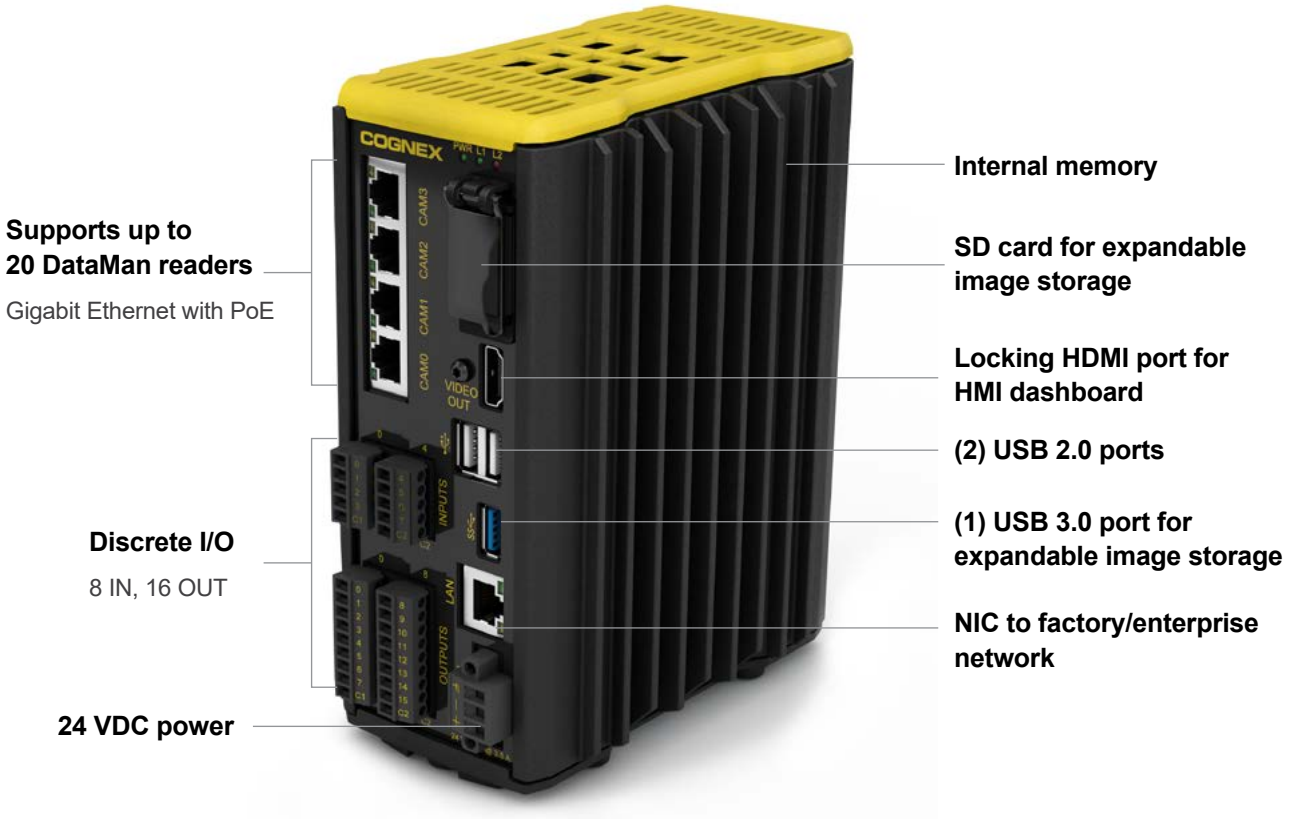
Automatically collect no-read images for future analysis

By collecting, organizing, and tracking timestamped images from DataMan readers following a failed read, it is relatively easy to identify and resolve the source of no-reads. With the addition of a Cognex In-Sight vision system, no-reads such as torn or missing labels can be automatically classified. In high-speed logistics applications, this makes it faster and simpler to identify the cause of no-reads and take corrective action.



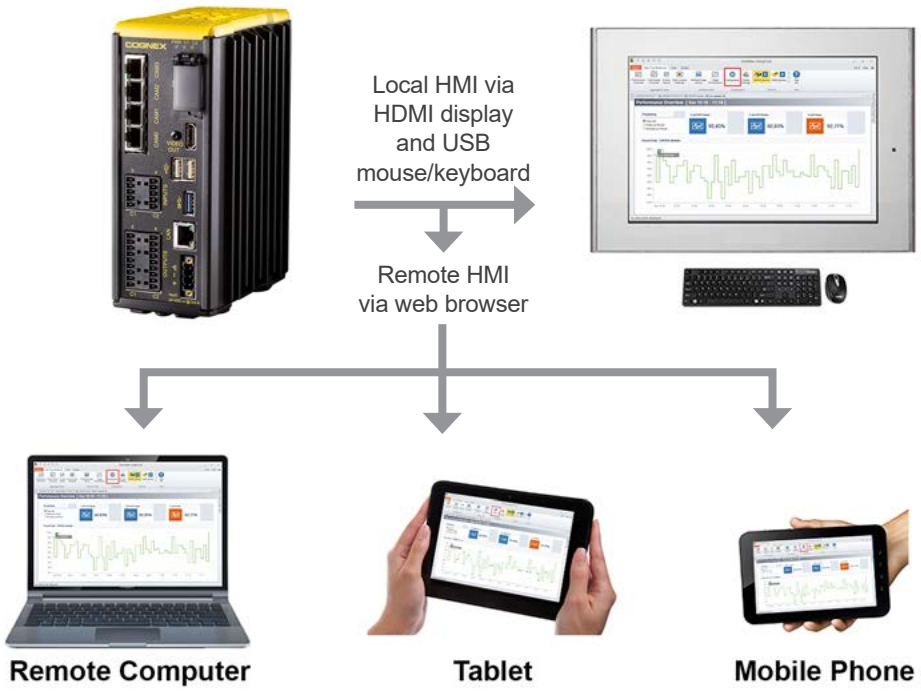
Cognex Explorer Real Time Monitoring Controller

The RTM Controller is easy to install and set up using the DataMan Setup Tool and collects data from up to 20 DataMan barcode readers across your facility. A trial version of RTM is available via DataMan Setup Tool 5.7 and later.



Intuitive, familiar interface

When using the DataMan Setup Tool, RTM Controller appears among your DataMan devices. Setup and configuration are similar to that of a DataMan reader. In addition to the Setup Tool, the system can be configured and monitored using a browser-based interface. Once installed and configured, RTM Controller's time-based performance statistics can be viewed anywhere within a facility from a desktop, tablet, smartphone, or through an external monitor via the on-board HDMI port.



SPECIFICATIONS	RTM CONTROLLER
Supported Cognex Devices	Up to 20 networked devices. Models: All Ethernet-based DataMan fixed-mount readers running firmware 5.7 or later. DataMan handheld readers running firmware 5.4.4 or later. In-Sight vision systems for image classification.
Storage	8GB internal flash memory. Additional storage available via SD Card, USB, and network storage.
Memory	2GB SDRAM
Cooling System	Fanless Design
Inputs	8 optically isolated discrete inputs
Outputs	16 optically isolated discrete outputs
Ethernet Switch[1]	4 port RJ-45 Gigabit Ethernet switch for connecting directly to supported DataMan and In-Sight devices. Additionally provides Power over Ethernet.
LAN Port[1]	1 RJ-45 Gigabit Ethernet port for connecting to enterprise/wide area network
USB Ports[2]	1 host USB 3.0 port (5 Gb/sec.) and 2 host USB 2.0 ports (480 Mb/sec.) ports for connecting mouse, keyboard or storage device
SD Card Slot	1 SD card slot for saving logged data and no-read images.
Video Out Port	1 locking HDMI port that provides connection to a display device
I/O Terminal Connectors	16–26 AWG, solid or stranded wire. Torque 0.25 Nm (2.2 in-lb)
24 VDC Power Connector	14–18 AWG, solid or stranded wire. Torque 0.6 Nm (5.3 in-lb)
Status LEDs	PWR LED, LED 1, LED 2
Housing	Aluminum, steel sheet metal, injection-molded housing
Mounting	Four bottom and four backside M4 x 0.7 threaded mounting holes. The RTM Controller may be optionally mounted using the accessory wall mounting bracket (BKT-WALL-VC200-01) or to a 35x15 mm DIN rail, using the accessory DIN rail mounting bracket (BKT-DIN-VC200-01)
Dimensions	178.8 mm (7.04 in) x 142.1 mm (5.59 in) x 75.1 mm (2.96 in)
Weight	1.45 kg (3.2 lb)
Current	3.5A (maximum)
Voltage	24VDC ±10%
Power Consumption	84W (maximum)
Operating Temperature[3]	0 °C to 45 °C (32 °F to 113 °F)
Storage Temperature	-30 °C to 80 °C (-22 °F to 176 °F)
Humidity	10%–85%, non-condensing (Operating and Storage)
Altitude	2,000 m (6565 ft)
Protection	IP30
Shock (Storage and Shipment)	30 G, per IEC 60068-2-7EA
Vibration (Storage and Shipment)	2 G, 2 hrs/axis (10-500 Hz) per IEC 60068-2-6, FC
Regulatory Compliance	CE, FCC, KCC, TÜV SÜD NRTL, RoHS

[1] To ensure reliable communication using Gigabit Ethernet, a supported Gigabit Ethernet device must be used and the Ethernet cable must not exceed 100 meters.

[2] Maximum USB port speeds are listed. Actual speeds are dependent on the USB device, which are typically lower.

[3] To ensure sufficient ventilation, the RTM controller must be mounted with 50 mm of clearance above and 50 mm of clearance on both sides. If an adjacent device also produces heat, additional space or cooling is required if air space around the RTM controller exceeds 45 °C (113 °F).

COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs, and control traceability.

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Lit. No. DSRTMCONTROLER-09-2017

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