





Matrix Video Surveillance

First Indian Company to Offer RDSO Compliant
Cameras for Indian Railways

Why Matrix?



Inhouse
Research &
Development
DSIR Certified



In-house
Manufacturing
Approved for
PLI



Truly
Make in India
Company



Network of
5000 Channel
Partners

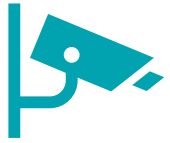


1 Million+
Happy
Customers



Global
Presence in
50+
Countries

Why Matrix?



One-stop
Solution for
Video
Surveillance



High
Resolution
Images



Live
Monitoring



Centralized
Surveillance



Scalable -
65,000+
Cameras,
1,000+ Users



Intelligent
Investigation
Features

Customer Stories



North Western
Railway,
Ajmer



Loco Workshop,
Parel Mumbai



Western Railway,
Kota



Southern Railway,
Chennai

Video Surveillance Challenges



Securing Railway Stations

- Protect Passengers Workers, and Travelers
- Enforce Safety Standards and Ensure Compliance
- Real-time Monitoring to Enhance Productivity



Preventing Accidents

- Gas, Chemical Leak, Fire and Fall Accident
- Real-time Response to Accidents
- Footage of Events



Securing Platform

- Secure Perimeter
- Secure Assets
- Prevent Illegal activities
- 24x7 Live Monitoring



Investigation and Compliances

- Proactive Reporting on Non-compliances
- Real-time Monitoring of Inaccessible Areas
- Prevent Illegal activities
- Playback and Evidence Gathering



Video Surveillance: Requirements

Data Security



Cyber Security in IP Cameras as Per OWASP ASVS 4.0 L2



Fault Detection and Notification (Camera, NVR, Storage, Network, and more)



Network Security and Hacking-Proof



Vandal-Proof Cameras



Surveillance



Clear Picture Quality at any time of the Day, with Real-time Zoom-in



360° Surveillance, with Real-time Zoom-in and Notifications



Simultaneous Viewing of Workers, Operations and Passengers



Proactive Video Surveillance, Timely Action, Pop-ups, Configurable Event Actions

Centralized Surveillance



Monitor Multiple Locations Centrally
Using NVRs Clustering Feature



Integration with Access Control and Fire
Alarm Systems



Access from any Device Mobile, PC, and
Laptop



Comprehensive Perimeter Intrusion
Detection Systems (PIDS) to Safeguard
Premises



Playback and Investigation



Video Storage for 30+ Days
(Backup/Archival/Retrieval)



Playback and Investigation of
Events, Incidents, Accidents



Snapshots and Video Proofs



Evidence Video/Audio Clips in
Standard Formats





Video Analytics and Automation



Face Detection and Recognition



Vehicle Number Plate Recognition



Real-Time Alerts and Notifications



People Counting, Accident
Detection, Loitering Detection

Additional Requirements



Advanced features like Vehicle Movement Tracking and Day-highlights for Project Monitoring



Optimum Bandwidth and Storage Utilization



Reliable and Durable, Weather-proof Cameras



Flexibility to Optimize Existing Infrastructure and Scalability to Accommodate Future requirements



Productivity



Automatic Project Progress Monitoring



Quick Project Review (Day-highlights)



Remote Monitoring of the Project



Realtime Guidance to Supervisor





Video Surveillance: Applications

Customer Use Cases



Security Officer: Remote Viewing

- Live View From PC, Mobile, or Tablet
- Monitor Operations from Other Location
- Aggregation and Logical Grouping



Security Officer: Live Monitoring

- Command and Control Centre
- Monitoring Cameras and Security Devices
- EIVA - Trip Wire, Motion Detection, and many more
- Perimeter Security



Security Officer: Playback and Investigation

- Real Time Video Streaming
- Proactive Video Surveillance
- Video Clips and Footage for Future Reference



Security Officer: Alerts and Notifications

- Proactive Reporting on Non-compliances
- Push Notifications on Mobile
- Emergency Calling on Designated numbers

Customer Use Cases



Safety Officer: Remote Viewing

- Centralized Monitoring for Safety Compliance
- Quick Response in case of Accidents
- Bookmark Incidents and Easy Clip Download of Footage of Events



Passenger Safety

- Safety of Travelers, Work Areas, Station, and Assets
- Prevent Accidents and Casualties
- Trip Wire, Motion Detection and many more



IT-Data Security

- Auto Change Data Storage Location if HDD Fails
- Redundancy
- Security Against Hacking and IP Attacks
- Restrict Access of Unauthorized Users



Incident Clips and Reports

- Proactive Reporting on Non-compliances
- Real-time Monitoring of Inaccessible Areas
- Prevent Illegal activities
- Playback and Evidence Gathering



Cyber Security for Video Surveillance

Cyber Security in IP Cameras

Features

- 1 Transport Layer Security (TLS).
- 2 SD Card Data Encryption
- 3 Signed Firmware

Advantages

- 1 Video Transcription in Transit and Secure Channel to Transmit Commands.
- 2 The Data Stored in The SD Card is Secured
- 3 Authorized Place Signs Official Firmware for Validation.

Benefits

- 1 Ensuring Complete Data Security in Transit
- 2 Enhanced Data Security as Only Authorized Person Has Access
- 3 Only Signed firmware is Allowed; no Unauthorized Installs

Cyber Security in IP Cameras

Features



4

Tamper Proofing

5

Security Boot

6

Banned C Functions

Advantages



4

Hardware and
Software Tamper-
Proofing for Security

5

Secure Boot Ensures
Trusted Software on
Boot-up

6

Banned C Functions
are Removed While
Development

Benefits



4

Ensures Device and
View Remain
Untampered

5

Enhanced Data
Security as Only
Authorized Person
Has Access

6

Banning C functions
Eliminates
Vulnerability Risks;
Ensuring Safety

Cyber Security in IP Cameras

Features



-  Secure 3rd Party Libraries/Binary
-  Advanced Cryptography
-  OS Command Injection

Advantages



-  Third Parties Versions revised and updated to their Latest Versions
-  Advanced cryptographic algorithms secure keys, data, firmware
-  Secure OS Using Encryption Techniques to Make it Inaccessible

Benefits



-  Enhanced Security and Reduced Vulnerabilities
-  Data, Keys, Firmware Encrypted and Stored for Foolproof Security
-  Prevents Execution of Any Other Operating System on the Device

Cyber Security in IP Cameras

Features

10 Disable Unused Debug Interface

11 Firmware Anti-rollback

12 Over the Air (OTA) and Secure File Transfer Protocol (SFTP)

Advantages

10 Unused Debug Interfaces are Disabled or Encrypted by Password

11 No Firmware Downgrade to Avoid Vulnerabilities

12 All Data Transfers are Secured Using SFTP

Benefits

10 Ensures Unused Debug is not Misused by Miscreants

11 Prevents Intentional Firmware Downgrades, Done to Exploit Vulnerabilities

12 All Data Will be Secure Even while using Wireless Network



Video Surveillance: Matrix Building Blocks

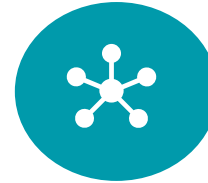


Matrix VMS

SATATYA SAMAS



- Highly Scalable Solution
- Houses 65,000+ Cameras,
- 65,000+ Users at 10,000 Locations



- Centralized Surveillance and Monitoring
- Hierarchical User Rights and Profiles



- Integration with Ancillary Security Devices
- Integrates with Access Control Devices



- Intelligent Investigation Features
- Advances Solutions like Parking Management, CREAM and More

Matrix VMS SATATYA SAMAS



- Deep Learning Based High Accuracy Automatic Number Plate Recognition Algorithm



- Hassle-free Entry for Listed Vehicles
- Parking Guidance, and Slot Availability



- Alerts/Notifications on the Entry of Blacklisted Vehicles
- Wrong-way Detection, Haphazard Parking, and Unauthorized Parking



Matrix Enterprise Network Video Recorders



- 256 IP Camera Channel Support
- 144TB Storage Capacity



- 1Gbps Throughput Capacity



- 12MP Camera Stream Support



- 4 Levels of Data Redundancy, Hot Swappable HDD and RAID Support 0,1,5,10

Matrix Network Video Recorders Extreme



This system supports up to 16 channels and has a storage capacity of 10 TB.



This is Perfect for Small Offices and Retail Spaces



You can cluster up to 20 NVRs to access all cameras in the NVR loop.



High Throughput Capabilities and Integrates well With Access Control Devices

Matrix Network Video Recorders - XS



Up to 64 Channel Support with a Storage Capacity of 10 TB



360 Mbps Throughput Capacity and 4K Decoding on HDMI 2.0



Camera-wise Recording Retention and H.265 Compression to Optimize Storage



RAID Support 0,1,5,10

Matrix Network Cameras



Sony STARVIS Sensor for Superior Low Light Performance



Cyber Security as per OWASP ASVS 4.0 L2



P-IRIS for Precise Aperture control and High Reliability and Performance



512GB SD Card Support, Ensuring High Availability with N+1 Camera Redundancy



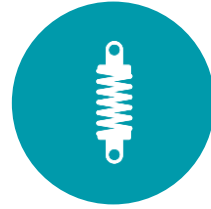
First CCTV Manufacturer to
Achieve
Cyber Security Certification
by STQC, Delhi
as per OWASP ASVS 4.0 L2

Reiterates Our Commitment
to Providing Data Secure
Surveillance at All Times

Ruggedized IP Cameras



Available in 2MP and 5MP Variants




Rugged Design Minimizes Impacts, Shocks, and Vibrations, Best Suited for Transport Industry



Electronic Image Stabilization Combats Motion-induced Blurring and Give Sharp Images even When in Motion



Reliable Functioning in Extreme Conditions – Dust, Humidity, Snow, Heat, Power Fluctuations



CONVENTIONAL CAMERAS

Superior Quality Images
In Motion
Ideal for Transport





Compact and Rugged
Design
Ideal for Space Constrained areas





Suitable for
Extreme
Conditions



Weather Resistant



Vandal Proof



Tamper Proof

CERTIFICATES



Security Test Report [Final]

Network Cameras [End Point Device] Of M/s Matrix ComsecPvt. Ltd.

22nd May, 2023



STQC IT-ERTL (N),
STQC Directorate,
Ministry of Electronics & Information Technology
ERTL (North), S-Block, Okhla Industrial Area Phase - II
New Delhi - 110020

STQC IT-ERTL (N), Delhi END POINT DEVICE SECURITY ASSESSMENT REPORT

SRF & Proposal No.	Assessment Report Number	Date	Page
TA/2022/11/137 & STQC IT-ERTL(N)/IoTSCS/MatrixComsec/NC_2MP/10/2022/Proposal/105	STQC IT-ERTL(N)/Matrix Comsec/EndPointDevice/Network Camera/AS/TR/05/2023/057	22/05/2023	1 of 89

CYBER SECURED DEVICES REPORT FROM
STQC, DELHI



Govt. of India
Ministry of Electronics & I.T., STQC Directorate
ELECTRONICS TEST AND DEVELOPMENT CENTRE, MOHALI
B-108, Industrial Area, Phase- VIII, Mohali (PB)-160071

TEST REPORT

Report No.	Dated	Page No.
ETDC(MH)/T&M/007	21-08-2023	1 of 8

- Indenter
M/s MATRIX COMSEC PVT. LTD.
394, GIDC, Makarpura
Vadodara, Gujarat-390010
(SRF No. 18891 dt. 08.05.2023)
- Description of sample(s)
 - Nomenclature : SATATYA DOME IP CAMERA
 - Manufacturer : MATRIX COMSEC PVT. LTD.
 - Model : SATATYA CIDR20MVL12CWP P2
 - Sr. No. : 10000341
 - Brand Name, if any :
 - Quantity of sample(s) : 01 No.
- Sample(s) received on : 08.05.2023
- Condition of sample(s) on receipt : Good
- Date(s)/Period item(s) tested : 12.05.2023 to 10.08.2023
- Location where test(s) carried out (With name and address) : ETDC Mohali
- Reference of test method(s) used : IS 9000 (II/III/IV) & IEC 60529
- Applicable product specification(s) : RDSO/SPN/TC/65/2021, Version 6.0
- Deviation(s), exclusion(s), addition(s) in test method(s) : Nil
- Environmental conditions
 - Temperature : 25°C ± 10°C
 - Humidity : 45% to 70% RH

Major Equipment Used

S.No.	Nomenclature	Make	Model	Cal. Validity
i	Measuring Scale	Khyati	SS-01	March, 2024
ii	Digital Vernier Caliper	Mitutoyo	500-142	July, 2024
iii	Climatic Test Chamber	Vostech	C4-1500	Jan, 2024
iv	Thermo Hygro Meter	Victor	HTC-1	May, 2024
v	Light/ Lux Meter	Fluke	941	Sep, 2023

Prepared/ Tested by

Approved by

Issued by

TYPE TEST OF DEVICES FROM
STQC, MOHALI

Report No.CFR/2023/1808



Report on

RELIABILITY PREDICTION

OF

CCTV Camera Model No.: CIBR80ML12CWP-P2



CENTRE FOR RELIABILITY,
STQC DIRECTORATE
MINISTRY OF ELECTRONICS AND INFORMATION
TECHNOLOGY (MeitY)
GOVERNMENT OF INDIA
THIRUVANMIYUR, CHENNAI - 600041

Ph: (044) 24547700/01/89

TeleFax: (044) 24543713

E-mail: cfrr@stqc.gov.in

MTBF REPORT OF DEVICES FROM
NABL LAB










Video Surveillance: Matrix Salient Features






Performance

- 1 SONY Make Image Sensor with Back Illumination Technology for Superior Images in Low Light
- 2 True WDR Ensures Clear Images with Uniform Illumination
- 3 Industry Best HFOV Allows Better Coverage with Fewer Cameras
- 4 Adaptive Streaming Reduces Bitrate When No Motion is Detected to Optimize Storage and Bandwidth
- 5 Data Secure Surveillance to Keep the Privacy of The Passengers

Storage

- 1 Adaptive and Smart Recording to Reduce Storage Consumption Without Missing Out Details
- 2 H.265 Compression for Video Streaming to Reduce Storage Consumption by 50%
- 3 512 GB Storage Support for Edge Recording which Records Data in Case of Network or Server Failure
- 4 Camera-wise Recording Retention Feature Allows Allotment of Higher Retention Days for Selected Cameras
- 5 RAID 0,1,5,10 Support Ensures Certain Level of Data Redundancy Ensuring Protection of Critical Data






Live Viewing, Alarms, and Notifications

- 1 Clustering of NVRs to Access all cameras Connected to the NVR Loop
- 2 Access Cameras from Your Lap-top, PC or Mobile. Instant Calling Via Mobile
- 3 Real-time Push Notifications and Alerts via SMS and e-mail, an e-mail with snapshot, Upload Image/Clip, and TCP Notifications
- 4 Intelligent video Analytics for Proactive Surveillance – Motion Detection, Tripwire, Intrusion Detection, and more
- 5 Cognitive Response Engine with Automated Monitoring (CREAM) allows to Configure Predefined Scenarios for Monitoring and Analysis











Playback and Investigation

- 1 Alarm Recording Can be Linked to Alarm Events Like – Motion, Tampering, Manual Trigger, Tripwire, Motion and Intrusion for Storage Optimization
- 2 Backup for Disaster Data Recovery for Data Security Against Theft, Vandalism, and Storage Corruption
- 3 Archival and Retrieval: Moving Data to that is No Longer in Use for Extended Retention at Reduced Cost
- 4 Evidence Lock & Bookmark Search - Snap-shot, Bookmark, and Clip Export Functions on Run-time as Proof
- 5 Complete System Redundancy - Network(ISP), Recording Server, and Storage. Higher Data Security with RAID 0,1,5,10











User Rights

-  1 The Surveillance Solution Supports upto 65,535 Users. Multi-User Simultaneous Login - Up to 1000 Users
-  2 Multiple User Profiles with Specific Login Rights.
-  3 Application-based Rights, Configuration Rights, Media Rights, Entity-based Rights, System Health Reports
-  4 Quick Updates - Camera Stream Status, Recording Status, Recording Stages, Latest Recorded Files and More
-  5 Seamless Third-party Device Integration






Intelligent Video Analytics

-   Motion and No-motion Detection
-   Intrusion, Tamper, Missing Object, Loitering Detection
-   Audio Exception and Object Counting
-   Object Counting
-   Tripwire and No Trip wire Detection

Vehicle Tracking and Parking Management

-   Automatic Number Plate Detection
-   Centralized Dashboard and Vehicle Locator
-   Tracking Vehicles and Real-time Status of Vehicles
-   Tracking Vehicle Movement and Vehicle Movement Statistics
-   ANPR Based Vehicle Access Control and Parking

Cognitive Response Engine

-  1 Real-time Push Notifications and Alerts
-  2 24x7x365 Consistent and Proactive Surveillance
-  3 Integrated Dynamic Security System
-  4 Automated Video Monitoring without Lapses
-  5 Integration with Ancillary Security Devices

Who We Are

1 Million+
Customers

5000+
Partners

60+
Products

40+
Countries

30+
Awards



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THANK YOU!



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