

Industrial Facial Recognition System



Secure Operator Authentication for Industrial Automation

Category: SCADA — Facial & Tag Access Control **Generated:** 31 July 2026

Replace passwords, shared operator accounts and manual logins with a fast, secure facial recognition system designed specifically for industrial environments.

The Unified Microsystems Industrial Facial Recognition System provides rapid operator authentication for HMI panels, machinery and industrial control systems. It integrates with existing automation infrastructure and supports both standalone and enterprise deployments.

Whether you require local authentication on a single machine or centralised identity management across multiple production lines and facilities, the platform provides a flexible architecture that can be deployed to suit your operational requirements.

Key Features at a Glance

Industrial-Grade Facial Recognition Fast and reliable facial authentication designed for use in industrial environments with varying lighting conditions.	Siemens WinCC Integration Authenticate operators directly within Siemens WinCC applications without requiring traditional usernames and passwords.	RFID / NFC Tag Authentication Use operator credentials stored on secure RFID/NFC tags.
OPC Integration Communicates directly with PLCs, SCADA systems and automation platforms using OPC, so authentication events become part of the control system.	REST API A comprehensive REST API allows integration with existing business and industrial applications.	Offline Operation The system can continue operating without an active network connection.

Benefits

- Eliminate shared operator passwords
- Improve operational security
- Reduce unauthorised access
- Simplify operator login
- Support offline environments
- Centralise identity management
- Integrate with existing automation systems
- Scale from a single machine to enterprise deployments
- Improve traceability and accountability
- Flexible deployment architecture

Deployment Options

Standalone Local authentication for individual machines.	Centralised Enterprise authentication server shared across multiple systems.
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Secure Tag

Facial template stored directly on the operator's assigned credential.

Hybrid

Combination of local, central and credential-based authentication.

Typical Applications

Industrial machinery

Manufacturing

Process plants

Pharmaceutical production

Food and beverage

Utilities

Energy

Water treatment

Building Management Systems

OEM machine builders

Critical infrastructure

Common Use Cases

Machine operator login

HMI authentication

SCADA authentication

Electronic operator signatures

Production line authorisation

Maintenance engineer authentication

Supervisor approval

Controlled process access

Equipment commissioning

Restricted operation modes

Industrial-Grade Facial Recognition

Fast and reliable facial authentication designed for use in industrial environments with varying lighting conditions.

- High-speed authentication
- Low false acceptance rates
- Live face verification
- Optimised for production environments
- Offline operation
- Automatic camera detection
- Configurable confidence thresholds

Siemens WinCC Integration

Authenticate operators directly within Siemens WinCC applications without requiring traditional usernames and passwords.

Supports operator authentication for:

- WinCC Professional
- WinCC Unified
- Custom HMI applications
- Industrial PCs
- Panel PCs

Ideal for:

- Machine operation
- Production lines
- Process control
- SCADA systems
- Building Management Systems

RFID / NFC Tag Authentication

Use operator credentials stored on secure RFID/NFC tags.

Authentication can be configured as:

- Face only
- Tag only
- Face + Tag (multi-factor authentication)

This provides additional protection for critical operations while maintaining a rapid login process.

Template Stored on Secure Tag

Store the operator's facial template directly on their assigned security tag.

Benefits include:

- No central database required
- Rapid deployment
- Simple replacement of hardware
- Operator retains their credential
- Suitable for isolated or secure environments
- Minimal infrastructure requirements

This deployment model is ideal where systems operate independently or network connectivity is limited.

Central Template Server

Manage operator identities from a central server shared across multiple machines, production lines or facilities.

Benefits include:

- Single operator enrolment
- Central user management
- Shared credentials across multiple machines
- Instant revocation of access
- Central backups
- Enterprise scalability
- Multi-site deployment

Perfect for larger manufacturing facilities and organisations operating multiple production lines.

Hybrid Deployment

The platform supports both centralised and local authentication architectures.

Deploy:

- Local templates only
- Central server only
- Template on secure tag
- Hybrid deployments

Choose the architecture that best suits your operational and cybersecurity requirements.

OPC Integration

Designed for industrial automation.

The system can communicate directly with PLCs, SCADA systems and automation platforms using OPC, allowing authentication events to become part of the control system.

Typical data includes:

- Authentication successful
- Authentication failed
- Operator ID
- User name
- Authentication status
- Login state
- Machine ready status
- Logout events

This enables automation logic to make decisions based on authenticated operators.

REST API

A comprehensive REST API allows integration with existing business and industrial applications.

Typical integrations include:

- Manufacturing Execution Systems (MES)
- ERP platforms
- Personnel databases
- Access control systems
- Visitor management
- Custom software
- Third-party applications

Local Database Support

Where required, authentication data can be stored locally on the machine.

Suitable for:

- Standalone equipment
- OEM machinery
- Air-gapped systems
- Remote installations

Multi-Site Deployment

Support multiple facilities from a single management platform.

- Shared identities
- Site-specific permissions
- Central administration
- Distributed authentication
- Remote management

Operator Enrolment

Simple operator enrolment process.

Capture:

- Facial template
- Name
- Operator ID
- Personnel information
- RFID/NFC credential

Templates are securely generated and can be stored centrally or directly on the operator's assigned tag.

Audit Logging

Maintain a complete audit trail of authentication activity.

Record:

- Successful logins
- Failed authentication attempts
- Logout events
- Machine accessed
- Date and time
- Operator identity

Ideal for compliance and operational investigations.

Offline Operation

The system can continue operating without an active network connection.

Depending on deployment, authentication can be performed using:

- Local database
- Templates stored on secure tags

This makes the platform suitable for remote sites and resilient industrial environments.

High Performance

Designed for rapid operator authentication.

- Fast recognition
- Low latency
- Industrial-grade reliability
- Continuous operation
- Optimised resource usage

Why Unified Microsystems?

Unlike generic biometric solutions, our platform has been developed specifically for industrial automation environments. We understand the operational requirements of manufacturing, process control and industrial infrastructure, delivering a solution that integrates with existing control systems while remaining flexible enough to support a wide range of deployment models. Whether you are modernising a single machine or implementing secure operator authentication across an entire manufacturing facility, our solution can be tailored to your operational and cybersecurity requirements.