GORAD FACTORY PLATFORM

Technical datasheet

Deployment, integration, inspection and security facts for engineers and plant IT.

DEPLOYMENT

Server	Ubuntu appliance, virtual machine or customer RHEL server
Station (Gorad Vision)	Industrial PC on Ubuntu; NVIDIA GPU for stations that run heavier AI tools
User interface	One web application in any modern browser: LIVE screens for operators, SETUP for engineers
Topologies	Standalone on the machine network, or a connected site server
Internet	Not required. No outbound connection, no telemetry by default
Network exposure	HTTPS (443) only; TLS between browser, station and server; customer certificates supported
Data stores	PostgreSQL for platform and app data; SQLite (WAL) journals on the station
Updates and release	Signed update and program bundles, over the network or by USB, from the web interface
Licensing	Offline activation; per-app entitlements. Licence state never affects inspection or the PLC output

INTEGRATION

PLC protocols	Modbus TCP, Siemens S7, OPC UA (client)
Vision handshake signals	Ready, Trigger, ResultOK / ResultNG (written after the journal and read back), Heartbeat (toggles every 0.5 s while healthy), LineUnsafe, PartToken, ProgramSelect, Ack; InPosition / CaptureDone per position for robot cells
Cameras	GenICam / GigE Vision industrial cameras; USB cameras
Machine data (Gorad Connect)	Tags mapped to standard events: machine.state, production.count, measurement, alarm. Store-and-forward through network drops. Read-only by default
Events between apps	MQTT, or HTTP ingest when no broker is used

APPS (EARLY ACCESS)

Quality	SPC · NCR / CAPA · Calibration & MSA
Production	Line Performance (OEE, Andon, downtime) · Maintenance · Tool & Fixture Life
Compliance & logistics	Traceability · Label & Dispatch · Skills & Training
Reports	PDF and Excel across the apps

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INSPECTION (GORAD VISION)

Verdict rule	OK only if every expected view reports OK; error, timeout, missing, empty or unknown results are NG
Classical tools	Presence and count, measurement, colour, barcodes and data matrix codes, polarity and position
AI tools	Anomaly detection, object detection, OCR, classification, segmentation
Model families (licence-clean)	PatchCore (anomaly), YOLOX (detection), RapidOCR / PaddleOCR (OCR), torchvision (classification), U-Net (segmentation)
Station types	Static; stop-and-go with variants and barcode-driven program selection; multi-position robot cells
Programs	Signed and verified before activation; golden-sample check; versioned with rollback

SECURITY

Posture	Designed with IEC 62443 principles in mind. No certification or compliance is claimed; no third-party penetration test yet
Authentication	Local users, Argon2 password hashing, sign-in throttling; personal 6-digit PIN for operators on shared kiosks
Authorization	Roles checked on the server for every request; re-authentication for production-changing actions
Roles	Operator, supervisor, engineer, quality, maintenance, admin, viewer
Signing	Ed25519; separate keys for programs, updates and licences; private keys kept offline; stations hold public keys
Audit	Append-only audit log of configuration changes
Supply chain	SBOM (CycloneDX) per release; dependency and secrets scans in CI; licence register; no AGPL, SSPL or GPL code shipped; no non-commercial model weights
Customer data	Images and results stay in the plant; no transfer to Gorad without explicit consent; exports audited; remote access off by default

NOT AVAILABLE TODAY

- EtherNet/IP; Gorad Connect acting as an OPC UA server
- Native Windows server install (the web interface works on Windows PCs)
- Cloud hosting and multi-site fleet management
- Full solder-joint AOI, 3D inspection and very high-speed line-scan web inspection
- MES, ERP or WMS replacement

Status

The Gorad Factory Platform is in early access. Every app is built and tested in software; the pilot programme proves it on real stations before general release. Details in this datasheet can change; ask us for the current version.

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