

ScoreKeeper

Technical Requirements

This document defines the server, network, hardware, and IT infrastructure requirements for a ScoreKeeper implementation. It is intended for customer IT teams, Sales Engineers, and Project Managers during the pre-sale and project kick-off phases.

1 — What is ScoreKeeper?

ScoreKeeper is Amtech's machine data collection platform for corrugated and packaging manufacturers. It captures real-time production data from equipment on the plant floor, tracks machine states (Run, Setup, Down, Break), collects downtime reasons, and presents live and historical dashboards to operators, supervisors, and plant managers.

ScoreKeeper operates as a web-based application hosted on the customer's internal network. It communicates with PLCs installed at each production machine, stores data in a SQL Server database, and serves dashboards to operator terminals and EZView display panels mounted on the plant floor.

A complete ScoreKeeper deployment includes three layers:

- Hardware layer — PLCs at each machine, photoeye or encoder sensors, EZView display panels
- Server layer — Application server (IIS web app + polling service) and SQL Server database
- Integration layer — Optional connection to Encore, Imaginera, or Axiom ERP systems

2 — Critical Infrastructure Rules

Read these before scoping any deployment

ScoreKeeper CANNOT share a server with the ERP system

ScoreKeeper's application server and the customer's ERP system (Encore, Imaginera, Axiom, or any other ERP) must run on separate servers. This is non-negotiable. The PLC polling service and IIS web application compete for CPU and memory during peak production hours — exactly when data accuracy matters most. Placing ScoreKeeper on the ERP server is the single most common cause of performance degradation and data loss at go-live.

ScoreKeeper CAN co-exist with other Amtech extension products

ScoreKeeper's application server may share a server with other Amtech extension products such as APB (Advanced Planning Board), provided the server meets the appropriate tier specifications below. The key rule is separation from the ERP system itself.

ScoreKeeper's SQL database CAN share a SQL instance with other Amtech databases

The ScoreKeeper SQL database may reside on the same SQL Server instance as other Amtech product databases, provided adequate resources are available. It must not share an instance with a heavily loaded ERP database unless confirmed by Amtech engineering.

3 — Server Sizing by Machine Count

Server requirements are determined by the number of production machines being monitored. Use the table below to identify the appropriate tier for your plant.

Tier	Machine Count	CPU	RAM	Storage / OS / Notes
Small	1 – 5 machines	4 core / 2.0 GHz+	8 GB	50 GB SSD min Windows Server 2019+ or Windows11 SQL Server 2019+ May share server with other Amtech extension products. Cannot share with ERP.
Medium	6 – 19 machines	4–8 core / 2.4 GHz+	16 GB	100 GB SSD min Windows Server 2019+ SQL Server 2019+ Dedicated VM strongly recommended.
Large	20 – 50 machines	8 core / 2.4 GHz+	32 GB	200 GB SSD min Windows Server 2019+ SQL Server 2019+ Dedicated VM required. Dedicated SQL instance recommended for plants running high-volume report scheduling.
Enterprise	51+ machines	See below	See below	Pre-sale infrastructure assessment required. See Section 4.

These are minimum specifications

These specs assume a reasonably healthy server environment. Before provisioning, IT should confirm current CPU utilization, available RAM, free disk space, and SQL maintenance status on any server being considered for co-location with other Amtech products. A server that meets specs on paper but is already running at 80% utilization is not an acceptable host.

4 — Enterprise Deployments (51+ Machines)

Deployments of 51 or more machines require a pre-sale infrastructure assessment by Amtech Engineering before hardware is specified, servers are provisioned, or a SOW is finalized. This is not a formality — at enterprise scale, the implementation variables are different enough that a blanket spec table would be misleading.

Why enterprise is different

- Database growth is significant. At 51+ machines running 3 shifts, ScoreKeeper generates tens of millions of timestamped events per year. Data retention policy, archival strategy, index maintenance, and SQL storage planning must be addressed before go-live, not after.
- Network topology is more complex. Large facilities often have multiple production areas, VLANs, or buildings. The assumption that an app server can reach all PLCs on a flat network may not hold. Distributed polling architecture or network changes may be required.
- High availability becomes a real requirement. Enterprise customers typically cannot tolerate unplanned ScoreKeeper downtime during production. Failover, redundancy, SQL Always On, and backup/restore SLAs must be scoped explicitly.
- Multi-site architecture decisions are required. Centralized single instance vs. per-plant instances is an architecture decision that affects hardware, licensing, network design, and support model — it must be made before any scoping begins.

What the assessment covers

- Machine count and shift schedule — establishes data volume baseline
- Facility layout — single site vs. multi-site, building/VLAN topology
- Existing infrastructure — current server hardware, SQL versions, network architecture
- ERP environment — version, load profile, co-location feasibility
- High availability requirements — uptime expectations, failover needs
- Growth plans — machine additions planned within 24 months

How to initiate an enterprise assessment

Contact your Amtech Account Manager to schedule a pre-sale technical review. Amtech Engineering will conduct the assessment and produce a scoped infrastructure recommendation prior to SOW finalization. Enterprise deployments cannot proceed to Stage 1 without a completed assessment on file.

5 — Hardware Requirements

5.1 — PLC (Programmable Logic Controller)

One PLC is required per production machine. The PLC captures machine signals (run, speed, downtime) and transmits them to the ScoreKeeper application server over the plant network.

Part Number	Description	Notes
Q10-01-154	Single Machine MicroLogix 820 PLC w/enclosure	Standard — one per machine for most installations
Q10-01-164M	Multi-Machine CompactLogix L18ER w/enclosure	Supports up to 5 machines MAX. Has limitations — consult Amtech before ordering. Not recommended as default.
Q10-15-011 V2	Micro PC for EZView (display panel)	One required per work center / machine
KT-Q02-15-031A	Encoder Wheel Assembly	Required only when production is measured by lineal feet (roll-fed operations). Not required for piece-count operations.

All ScoreKeeper hardware is sourced exclusively through Superior Automation Inc., Amtech's hardware partner:

Company	Superior Automation Inc.
Address	450 South Airport Road, Phillips, WI 54555
Phone	715-339-6800
Website	https://www.superior-automation.com
Orders	orders@superior-automation.com

5.2 — Critical PLC Power Requirement

PLCs require a dedicated 110V AC power circuit — separate from the machine

PLCs must remain powered even when the production machine is powered off. This is essential for accurate downtime tracking. A machine that loses PLC power when it shuts down cannot record downtime — it simply disappears from ScoreKeeper. This wiring requirement must be confirmed at each machine location before hardware installation begins. Recommended cable: Beldon 8723 or equivalent.

5.3 — EZView Display Panels & TVs

Each work center requires one EZView Micro PC (Q10-15-011 V2) connected to a customer-supplied TV or monitor. The EZView displays real-time machine status to operators on the plant floor.

Requirement	Detail
TV size	55" minimum recommended (larger for high-bay environments)
Resolution	1080p minimum, 4K acceptable
Input	HDMI required
Power	Customer-supplied and installed
TV procurement	Customer responsibility — not included in Amtech hardware order
Mounting	Customer responsibility — must be in operator line-of-sight
Network	Wired Ethernet strongly preferred. Wi-Fi is NOT recommended (see Section 6.3)

5.4 — Multi-Machine PLC Option (CompactLogix L18ER)

The multi-machine PLC option has real limitations — do not default to it

The CompactLogix L18ER can serve up to 5 machines from a single PLC. While this reduces hardware cost, it introduces complexity in wiring, configuration, and troubleshooting. If one machine's signal causes issues, all machines on that PLC are affected. This option requires explicit Amtech engineering approval before the hardware order is placed. It is not a default recommendation for new installations.

6 — Network & IT Requirements

6.1 — Required Network Traffic

The following traffic must be permitted for ScoreKeeper to function. Plant IT must confirm each of these paths is open before Professional Services begins installation.

From	To	Port / Protocol	Purpose
Application Server	PLCs	TCP/UDP 44818	PLC state polling (Ethernet/IP)
EZView Devices	Application Server	HTTP 80 or custom	Live display data feed
Operator Workstations	Application Server	HTTP 80 or custom	ScoreKeeper web UI
Application Server	SQL Server	TCP 1433	Database reads and writes
Report Service	SMTP Server	25 / 587 / custom	Scheduled email report delivery
Amtech Support	App Server + SQL	RDP / VPN	Remote installation and troubleshooting

6.2 — Static IP Requirements

All PLCs and EZView devices must be assigned static IP addresses. Dynamic addressing causes polling failures and display dropouts. Static assignments should be documented in the Pre-Installation document before installation begins.

6.3 — Wired Ethernet vs. Wi-Fi

Wired Ethernet is required for PLCs. Strongly preferred for EZView devices.

PLCs must be connected via wired Ethernet — no exceptions. EZView display panels should also use wired Ethernet wherever physically possible. Wi-Fi for EZView is technically supported but not recommended. Intermittent signal causes display dropouts and loss of real-time data visibility on the plant floor. If Wi-Fi is the only option for EZView, the plant network must provide strong, stable signal at every display location — this should be validated before installation, not after.

6.4 — DNS

ScoreKeeper should be assigned a DNS hostname (e.g., scorekeeper.plant.local) so that workstations and EZView devices can reach it by name rather than direct IP. This allows server migrations without reconfiguring every device. Both DNS hostname and direct IP fallback should be documented.

6.5 — VPN Access for Amtech Support & Hardware Engineer

Amtech requires VPN access to provide remote installation, configuration, and ongoing support, but most importantly for PLC access. VPN access must be confirmed and tested before Stage 3 (Software Installation) begins. Lack of confirmed VPN access is a hard blocker — Professional Services will not begin installation without it.

VPN Access Required To	Purpose
Application Server (RDP)	Software installation, configuration, troubleshooting
SQL Server (RDP or SQL auth)	Database creation, maintenance, troubleshooting
PLC network (at least one node)	PLC communication validation, polling troubleshooting
EZView devices (when needed)	Display mapping and connectivity troubleshooting

6.6 — Antivirus & Endpoint Protection

Antivirus and endpoint protection tools must be configured to exclude ScoreKeeper application directories, service executables, and PLC network traffic ranges. AV interference with the PLC communication service causes intermittent machine state updates — data appears to drop or freeze during production. IT must confirm exclusions are in place before go-live.

6.7 — Firewall Rules Summary

Rule	Detail
Inbound to App Server from workstations	Port 80 (or custom) — HTTP
Inbound to App Server from EZView devices	Port 80 (or custom) — HTTP
Outbound from App Server to PLCs	Port 44818 — Ethernet/IP
App Server ↔ SQL Server	Port 1433 — TCP
Outbound Report Service to SMTP	Port 25/587 (or custom)
VPN inbound for Amtech support	Per plant VPN policy — SSL or IPSec preferred

7 — Software & ERP Prerequisites

7.1 — Required Software

Software	Requirement
Operating System	Windows Server 2019 or later
SQL Server	SQL Server 2019 or later
IIS	Internet Information Services — must be installed and configured on Application Server
.NET Framework	Required version confirmed by Amtech PS at installation
Browser (end users)	Modern browser required — Chrome or Edge recommended. Internet Explorer not supported.

7.2 — ERP Prerequisites (Integrated Deployments)

For deployments integrating ScoreKeeper with Encore, Imaginera, or Axiom, the following must be confirmed before Stage 2 (Pre-Work) closes:

Prerequisite	Detail
Current ERP build	Customer must be on the latest supported build of Encore or Imaginera before ScoreKeeper installation begins. Outdated ERP versions cause integration failures that are not ScoreKeeper bugs.
RPMMaint configuration	PLC IDs, database name, credentials, and charge codes must be configured in RPMMaint. This is a Technical Consultant responsibility confirmed in Stage 2.
Keymake / Keyapply licenses	Required to unlock RPMMaint capabilities. Must be confirmed in the SOW before project starts.
PDE / Job Cost configuration	PDE, Job Cost Post Labor, and Matrices must be evaluated during Stage 2 pre-work. Gaps discovered after Stage 3 are RFE-level work and may impact go-live timeline.
SQL.ini alignment	Must match truncated database names if applicable. Validated by Technical Consultant during Stage 2.
Current Cust ID	Must be confirmed and documented in the Pre-Installation document.

8 — Customer Responsibilities

The following items are customer responsibilities. They are not optional and are not included in Amtech's scope of work unless explicitly stated in the SOW. Gaps in these areas are the most common cause of delayed go-lives and post-launch support issues.

Customer Responsibility	Detail	Required By
Designate a Project Lead	Must have authority to make configuration and operational decisions on behalf of the plant	Stage 1

Customer Responsibility	Detail	Required By
Complete Pre-Installation Document	All required fields must be filled before Professional Services can begin installation	Stage 2
Confirm and test VPN access	VPN credentials must be provided and tested with Amtech before installation begins	Stage 2
Provision servers per tier specifications	IT must provision the appropriate server(s) before Stage 3	Stage 2
Confirm ERP is on current build	Encore or Imaginera must be on the latest supported version	Stage 2
Complete IT network checklist	All firewall rules, port openings, and AV exclusions confirmed before Stage 3	Stage 2
Procure and install TVs / displays	55" minimum, 1080p, HDMI input. Customer-supplied and customer-installed	Stage 4
Confirm 110V AC availability at each PLC	Separate circuit from the machine — required before hardware installation	Stage 4
Identify hardware receiving contact	Name and receiving hours for Superior Automation shipment	Stage 4
Identify hardware storage location	Confirmed secure storage location for PLC and EZView hardware upon delivery	Stage 4
Provide SMTP relay info	Required for automated email report delivery — server, port, authentication	Pre go-live
Plant IT sign-off on Pre-Install doc	Formal IT confirmation that infrastructure is ready. Required gate before Stage 3.	Stage 2

9 — Backup, Maintenance & Long-Term Requirements

These requirements are the customer's ongoing responsibility after go-live. They are not Amtech's responsibility unless a managed services agreement is in place.

Requirement	Detail
SQL backups	Full daily backups. Minimum 14-day retention, 30-day recommended.
SQL index maintenance	Weekly rebuild/reorganize. Without this, dashboard and report performance degrades over time as event tables grow.
Application file backups	IIS site directory and service configuration files should be backed up before any Windows update or infrastructure change.
Server snapshots	VM snapshots before ScoreKeeper upgrades, Windows updates, or infrastructure changes.
AV exclusion maintenance	Exclusions must be re-confirmed after any AV platform update or policy change.
VPN access maintenance	Amtech support VPN credentials must remain active. Expired VPN access means Amtech cannot provide remote support.
Data retention policy	Plants with 20+ machines should establish a data archival policy within 6 months of go-live to manage database growth.

