

# Serial to Ethernet for Factory Floor Automation

## Project

### Connecting Factory Floor With Corporate Ethernet

A textile manufacturing factory was looking for a communication solution. Its current sophisticated automation systems for manufacturing, distribution and warehousing have historically been hampered by technical and feasibility issues connecting plant floor devices (warp, winding, spinning, loom etc) to PLCs within the enterprise due to incompatibility with industrial automation control systems.

### Requirements

The desired objective is to produce high quality fabric economically and as free from faults as possible, this is achieved to a large extent by monitoring and control, which acts as a tool for the shop floor technicians by providing accurate:

- **Loss of Utilization (Out-of Production times)**
- **Stoppages - up to 8 distinct stoppages with reasons including Weft, Warp**
- **Stoppage analysis**
  - Production report shift wise/ sort wise for any period and up to the minute**
  - Instantaneous and average production speeds**
  - Warp change schedule**
  - Maintenance scheduling of machines**

### Challenge

The challenge was to build the system to process monitoring, control and communication between PCs, PLCs, and other process controls (warp, winding, spinning, loom etc). The target was set to improve finished products quality assurance and gain more detailed manufacturing information utilizing current infrastructure.

### Solution

The solution was instant by integrating SUNIX Industrial Device Server. It perfectly synchronized their Ethernet/IP network with their industrial serial devices. The device servers having an upper layer protocol fully compatible with standard TCP/IP protocols such as HTTP and SNMP. Hence SUNIX IDS series also offer communication redundancy, which was quite important for some serial segment. Those important serial devices integrated through IDS-3042 models which offer redundant port and 3-in-1 serial ports.

The auto-detection and switching of serial devices (between RS-422 and RS-485) allows users to apply the same objects and profiles for plug-and-play interoperability among different serial devices. Ethernet/IP provides manufacturers with a proven and future-proof network solution, one that incorporates all the advantages that have made Ethernet and Internet technologies ubiquitous and essential in office applications.

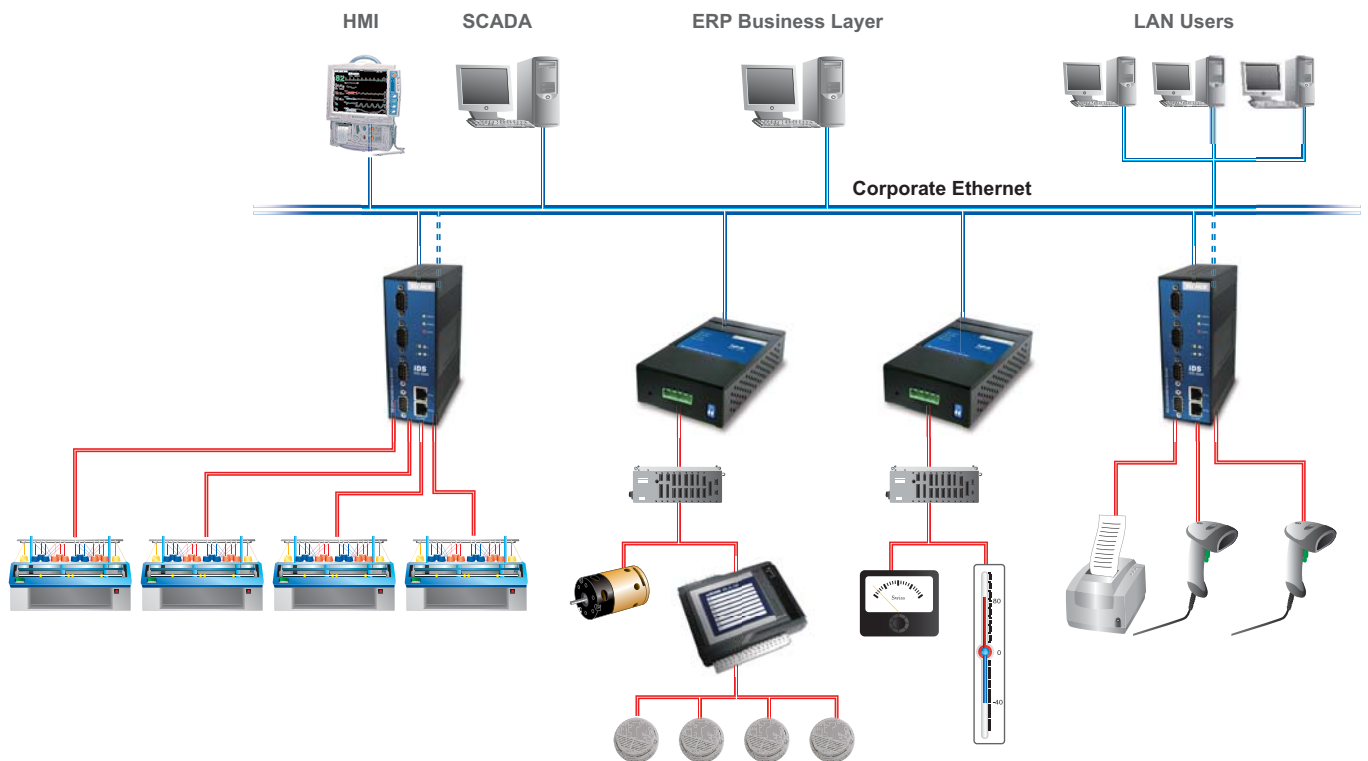
“In our manufacturing facility, we needed a solution to add multiple serial ports connecting loom machines, PLCs, bar code scanners and printers in order to improve product quality assurance and access more detailed manufacturing lot information. We were looking products that not only provide serial to Ethernet integration, but are also reliable, user friendly and withstand the harsh factory floor environment. It was the perfect solution to communicate with all of these added devices on our Ethernet/IP platform. It allowed us to minimize long-term costs, and still leverage our current infrastructure investment”, Tim Roger, Chief Engineer

## Why SUNIX

- **Extended serial to Ethernet communication solutions range.**
- **Higher reliability with Ethernet redundancy.**
- **Easy to use products with efficient integration capability.**

Lately, organizations don't need to be slaves to industrial automation protocols. Device servers from SUNIX enables plant floor devices (like CNC) and PLCs to communicate in the same network language, providing a fast and simple way to access raw data without a large capital investment. The most flexible device servers available in the market enable communication between serial devices residing on the factory floor and PLCs supporting the legacy serial industrial protocols.

## Application Topology



## Key Products

IDS-3042

IDS-2011