



CEF eCommerce National Distribution Centre Automation Project



City Electrical Factors Limited (CEF), who were formed in 1951, are now the UK's leading Electrical Wholesale Network, and currently boast to having twice as many distribution outlets than their nearest competitor.

In order to provide the best possible service CEF have developed a highly responsive and motivated organisation that can adapt readily to each individual customer's needs and requirements.

Due to the projected growth and to accommodate the continued professional service level, CEF understood that they need to move from their existing distribution warehouse to a larger purpose built DC.

This resulted in a 100,000 sq ft purpose built/designed Distribution Centre being commissioned. Along with a 2 level mezzanine structure the total floor space equalled 160,000 sq ft.



As part of the infrastructure to the new DC a solution was required to enhance the process from order placement through to despatch and provide increased throughputs. A requirement was to incorporate both order picking / packing / despatch solutions along with an inbound - replenishment function, which could easily interface with the in-house developed IT system.

Following initial investigations and discussions with various potential suppliers, CEF turned to Conveyor Systems Limited (CSL) as the preferred partner to work with on this project.

During the tender process CSL demonstrated an understanding of the project values, and conducted a pro-active assessment of the project. CSL worked closely with CEF and developed a partnership which ensured both CEF and CSL were the right fit for each other.



Our Solution

The design team at CSL needed to ensure the system layout maintained the functionality and was space efficient. Using 2D and 3D modelling software CSL developed a system which fulfilled all of the requirements.

CSL employed the use of the Interroll 24v motorised roller conveyor which provides non-contact accumulation and zonal control for the entire system. All of the peripheral devices are 24v controlled also.



A web based WCS/SCADA was implemented by CSL to interface to the WMS system, enabling the conveyor system routing to be controlled and amended in live time. The WCS provided all historical data as well as over-arching control of the entire conveyor solution. The client has the ability to dial into the WCS from a PC/Tablet anywhere that has an internet connection.

The scope was defined in so much as inbound-replenishment stock was to be conveyed in a Grey tote, order picking in Red totes (not coincidental that they matched CEF corporate colours) and despatched items to be all cartons. All totes had dedicated barcodes incorporated onto them.

As both inbound-replenishment and order picking totes shared the same conveyor which provided a dual function, whenever a tote was offloaded, the operator instantly could recognise it as an order pick requirement or replenishment stock.



“I have found working with CSL the ideal partnership, they understood the brief and worked closely with CEF to ensure the design met all of the criteria. The support from start to finish was excellent. The project ran smoothly from start to finish. The conveyor system has made our new warehouse very efficient and allowed us to increase the throughput”

Craig Marks, Divisional Manager, CEF online

The first challenge was to link up the inbound-replenishment stock which arrived at the opposite end of the building to the mezzanine storage/picking area. Stock was booked in and then scanned into a tote, which was elevated immediately to high level, via an AmbaFlex spiral. It was then conveyed all at high level using specially designed hangers which used the building columns at 7m centres, ensuring no supports occupied ground floor space. The replenishment roller conveyor entered onto the 1st floor level and merged into the main conveyor system. New orders were assigned to a tote which are inducted into the system at ground floor level and elevated via an AmbaFlex spiral onto the 1st floor mezzanine area and combined the replenishment element into one common roller conveyor.



The replenishment and order picking function takes place over 2 mezzanine floor areas, and each floor has 4 offload transfers of which each offload has a bi-directional transfer and spur conveyor. This provides 8 locations per floor.

The routing of the totes is dictated by the clients WMS and the offloading is controlled via the WCS. At each transfer point a SICK barcode reader is employed for a confirmation read / trigger signal.

Should an order need consolidating from another location or it cannot access the required offload location, it will continue to visit all other locations required, and then elevate up onto the 2nd floor mezzanine via an AmbaFlex spiral which is sited on the 1st floor mezzanine. The process is replicated on the 2nd floor.

All completed order picks or empty replenishment totes are lowered to the ground floor via the 4th AmbaFlex spiral in the system and delivered to one of 40 pack benches using a two-tiered conveyor system.

Any item that has could not be offloaded to its required destination will be re-circulated through the system and is WCS controlled.

The dual sided pack benches share a common incline conveyor belt to which they load the packed and completed items. All despatch items merge onto the top tier of this 2 tier conveyor. At the end of the line a 4 way SICK scanning array is employed, looking at the front / 2 sides / top of the carton for a despatch courier label and sorted via a one of two Interroll High Performance Diverters to one of 4 despatch lanes.



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Let's get things moving.

Contact us today to discuss your automation requirements.

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