



CC-Link brings assured reliability to Ford Mustang production

The ease of installation and commissioning of new production lines at the AutoAlliance car plant in Flat Rock Michigan were early benefits of the adoption of CC-Link networking technology at the heart of the automation system. And more was to come, with this proven, high speed network proving the ultimate in reliability, particularly when compared with other network options.

With reliability the watchword in modern automotive manufacture, AutoAlliance engineers knew that their choice of fieldbus would be one of the keys to smooth production. And for the assembly and paint operations, they chose to standardise on CC-Link, the high speed, high performance, open networking technology managed by CLPA (CC-Link Partner Association). Key to this choice was CC-Link's ability to provide effective networking over distances up to 13.2km – important at the Flat Rock facility which is a 250k sq M operation – and its proven performance in even the most hostile of manufacturing environments.

Each vehicle body travels approximately 21km through the Flat Rock plant in the course of production, through numerous welding, assembly and painting stations. CC-Link forms the communications backbone for the inverters that drive the complex conveyor system, helping to ensure that each section of car body is exactly where it needs to be, precisely when it needs to be there.

Key aspects of production include the assembly and welding operations. Five CC-Link network masters handle all communications through this vital area.

One provides all communications between the control panels within the body shop, with the remaining four controlling the materials handling equipment, robots and welding operations. In all, the robust networking technology reliably links over 125 control panels within the Mustang body shop, and a further 125 control panels in the Mazda body shop where CC-Link controlled ABB robots apply the LASD (Liquid Applied Sound Deadening) material and joint sealant within the body of the car prior to painting.

Also within the body shop, CC-Link networking is used for communications to control the jig bed that holds and folds large sections of the auto body, and to control and coordinate numerous Kawasaki robots within this manufacturing cell. The network is used to start and stop each robot movement as they position, weld and move on various car body parts, and also enables the robots to communicate their positions to each other in order to avoid collisions. In all, around 400 robots in the body assembly part of the facility are connected via CC-Link, and the robust network also provides communication to and from the various PLCs and operator interfaces within the various assembly cells.

With upwards of 95% of the controls within the body assembly portion of the facility connected over CC-Link, the choice network at the outset was critical, but the control engineers at AutoAlliance are confident they made absolutely the right choice, commenting: "The ease of assembly-line start-up and excellent reliability of CC-Link has translated into a highly productive manufacturing facility. The speed at which these new lines were installed and commissioned resulted in significant savings in comparison to other networked systems used previously."

CLPA Europe Deputy General Manager, John Browett, comments: "These experiences are typical of the benefits offered by CC-Link in demanding manufacturing operations. The technology has proven itself time and again in the most hostile of network environments."

About the CLPA

The CC-Link Partner Association (CLPA) is an international organisation with over 1,500 member companies worldwide. The partners' common objective is promotion and technical development of the family of CC-Link open network technologies. Over 1,100 certified products are now available from over 240 manufacturers. CC-Link is the leading industrial fieldbus in Asia and is becoming increasingly popular in Europe and the Americas. The European headquarters is in Germany, with offices throughout the continent.



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