

The CC-Link Times



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The Safety field network “CC-Link Safety” is now released. Meets safety requirements and provides the benefits of wiring reduction.

Now, production line safety must be considered equally important to productivity and efficiency improvement in manufacturing. The purpose of a safety system is “Protection of workers from danger”. It must support dual wiring of safety sensors or emergency stop buttons to the safety control system. And also the safety system is required to work closely with the controlling systems. CC-Link safety meets the needs of production sites for saving wiring costs while at the same time ensuring safety. It is a network with high

reliability in data transmission suitable for use in safety application systems that require compliance as a whole with IEC61508 SIL3 and EN954-1/ISO13849-1 Category 4. “CC-Link Safety” inherits high-speed communication from the globally-accepted CC-Link network. It also uses the same network cable and remote I/O modules as standard CC-Link. This makes it possible to combine safety I/O and standard I/O on the same network for maximum efficiency, wiring reduction and ease-of-use.

Features of CC-Link Safety

Inherits the benefits of original (standard) CC-Link open network.

CC-Link Safety operates at 10Mbps communication speed (the same as CC-Link), and uses existing CC-Link certified cables.

Enhanced RAS function

Our safety communication design detects communication errors such as unexpected communication delays and erroneous data, and then brings the system to a fail safe shutdown.

Flexible safety system can be constructed.

Safety remote stations can be dispersed along the production line. This reduces I/O wiring and allows additional I/O to be easily added.

Verification processing on safety remote stations.

CC-Link Safety detects misconnections of safety remote stations through verification with network parameters stored in the safety master station.

“CC-Link Safety”: production line use and newly introduced compatible products

Safety systems, using “CC-Link Safety” together with safety controllers, have already been installed at several manufacturing companies. Many manufacturers within the automobile industry, semiconductor and flat panel display industries all over the world are now considering the use of CC-Link Safety. Mitsubishi Electric Corporation and

SUNX Limited, who are CLPA partners, have already launched /or developed “CC-Link Safety” compatible products such as safety PLC controllers and light curtains. Many safety device manufacturers in Europe and America have requested “CC-Link Safety specifications” and are now considering the development of “CC-Link Safety” compatible products.



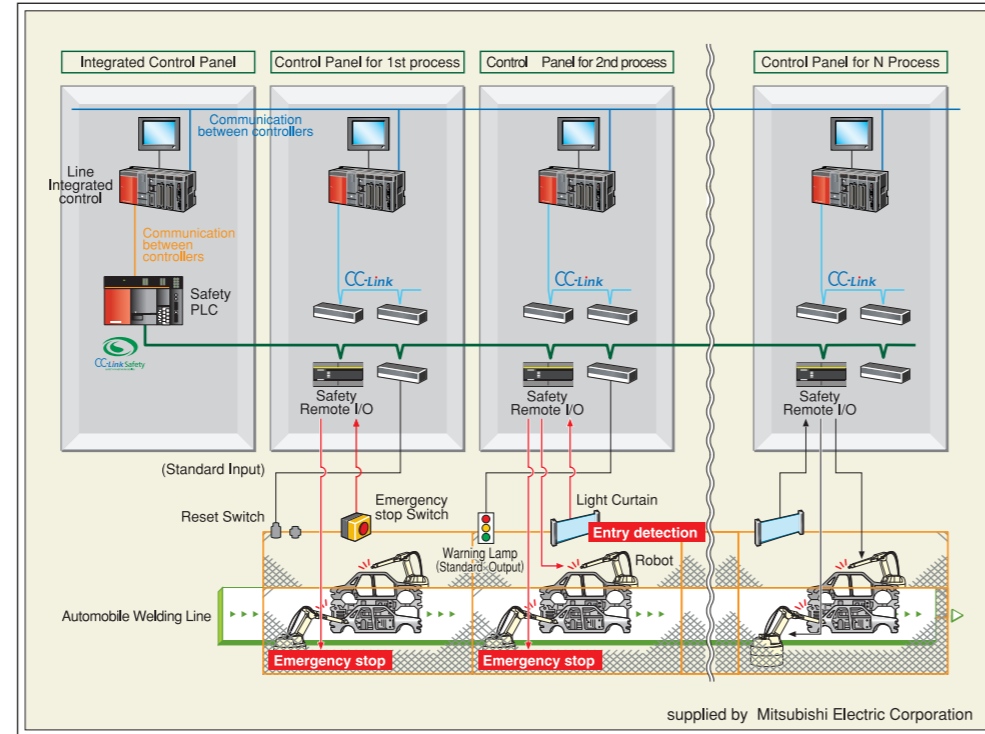
Mitsubishi Electric Corporation Safety PLC MELSEC-QS Series Sunx Limited Light Curtain remote I/O unit (available soon)

CC-Link Safety

CC-Link Safety Application: Automobile welding line

The process control PLC is connected to numerous standard remote I/O and various compatible products via a CC-Link network. It controls the conveyor operation and numerous robots. This PLC is connected to another PLC via a controller-to-controller network to provide a coordinated manufacturing line. The safety PLC is installed in the same integrated control panel and is connected to the following equipment via CC-Link Safety:
 -Light curtain and emergency stop switch wired to safety remote I/O (input),

-Emergency stop signal (for the robots) wired to safety remote I/O (output),
 -Reset switches and warning lamp wired to remote I/O (input).
 Operation- if the light curtain detects the entry of a worker to the area where the robot is installed, the Safety PLC controller via CC-Link Safety will send an emergency signal to the robot in order to stop it. The PLC for controlling the production line and the safety PLC are connected via a controller-to-controller network. This provides effective operational control and safety control.



CC-Link Safety seminars and presentations at global shows

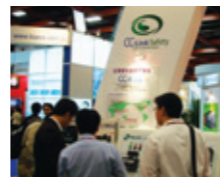
Korea CC-Link Safety seminar in AIMEX exhibition.

Safety systems are required by Semiconductor/FPD manufacturers in Korea. CLPA-Korea held a CC-Link Safety seminar at the AIMEX exhibition in March. Many attendees to the seminar asked how to build safety systems based on CC-Link Safety and why this results in wiring savings.



Taiwan CC-Link Safety exhibits at SemiTechTaipei

In Taiwan, many Semiconductor / FPD manufacturers have already started introducing safety systems there. CLPA-Taiwan made extensive presentations of CC-Link Safety with CLPA partners at SemiTechTaipei, which is the largest exhibition for semiconductor industries held this May. The safety network, "CC-Link Safety", was highly regarded.



Japan CC-Link Safety demonstrations in SEMICON Japan 2006

About 2,000 customers visited the CLPA booth at SEMICON-Japan last December. Presentations and demonstrations of "CC-Link Safety", with real equipment, supported by IDEC Corporation, SUNX Limited and Mitsubishi Electric Corporation were made. Visitors were very interested in actual demonstrations of CC-Link Safety. They also completed questionnaires and indicated a strong need for safety systems.



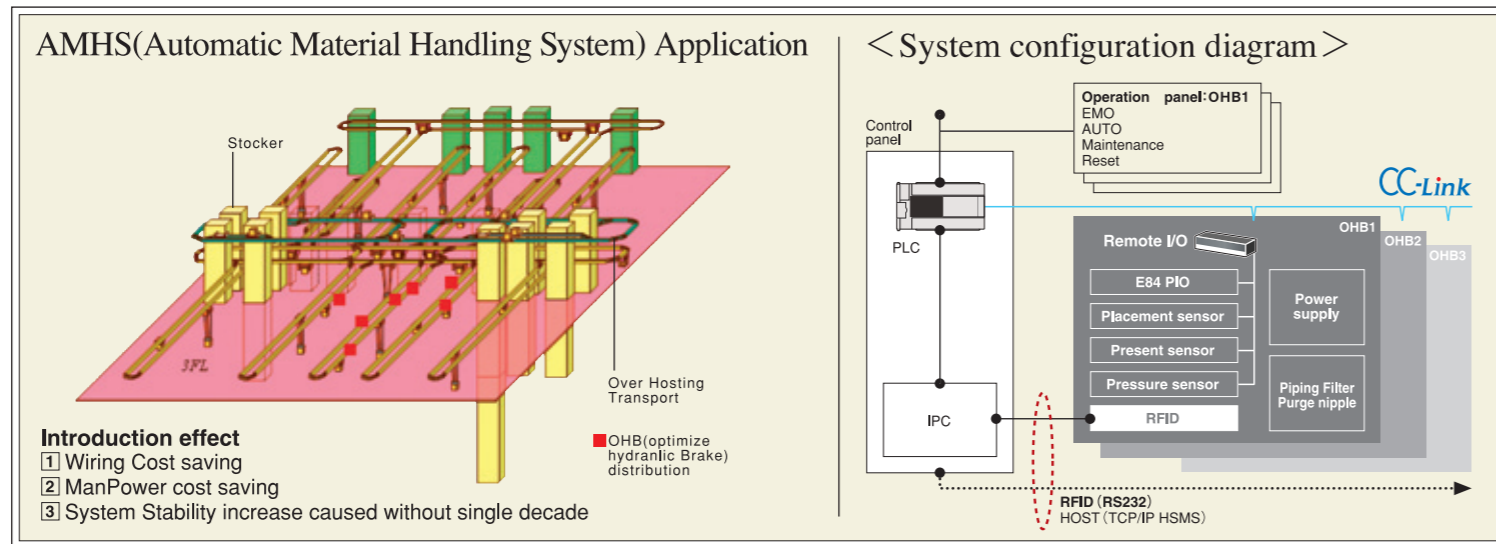
Canada North American Robot Safety Conference

This conference was held in Toronto, Canada at the end of March. Automation experts discussed strategies for the implementation and improvement of safety systems in automated environments. A product exhibition was held during the conference. CLPA-North America had a booth in the exhibition. We concentrated on promoting CC-Link Safety as part of our integrated family of networks which also includes CC-Link and CC-Link/LT. During the exhibition we had an opportunity to discuss the use of CC-Link Safety with equipment manufacturers as well as end users.

CC-Link Applications

Semiconductor factories in Taiwan

As one example of CC-Link use, Semiconductor factories in Taiwan apply CC-Link networking on their AMHS (Automatic Material Handling System). Many OHB (Optimize Hydraulic Brake) devices are installed on the conveyor line in this system and CC-Link modules control each of the OHB controllers. There is approximately 10m to 50m between each OHB, therefore much wiring has been required in the past. By using a CC-Link network, significant reduction of wiring and man-hour costs has been realized and the problem of signal degradation has been solved. (Cooperated by Santa Phoenix Technology Inc.)



Global Standard

From the first Japan-originated open field network to a Global Standard

"SEMI standard", "China's National Standard GB/Z", and approval as international standard "ISO 15745-5" ... CC-Link attained these standards. CLPA continue our activities to obtain international standards and national standards approval throughout the world.

<p>[International Standard : ISO15745-5] The approval as ISO15745-5 was attained in January 2007. CLPA, as a user and vendor consortium, made the proposal to the international Organization for Standardization (ISO) for inclusion of CC-Link technology in TC184/SC/WGS Open System Application Integration.</p>	<p>[SEMI Standard : SEMI E54.12] CC-Link was already certified as a SEMI standard in 2001, which is the international standard for the semiconductor & FPD industry. CC-Link acceptance has significantly increased within the semiconductor industry and FPD industry. CC-Link has now become a de-facto standard in these industries.</p>	<p>[China National Standard: GB] ● GB/Z 19760-2005: CC-Link was certified as GB/Z 19760-2005 in December 2005. ● GB/T 200299-4-2006: CC-Link was listed in Chinese Building Automation Standard in December 2006. The CC-Link Technology was recognized in Chinese industry and it is a significant advantage for expanding CC-Link business in China.</p>
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The international standard of IEC61158 and the other national standards are in process.

Global promotion activity

CC-Link in North America, Central America & South America

CC-Link Seminar in Miami, USA and Sao Paulo, Brazil

CLPA-North America conducted a CC-Link seminar in Miami during mid-April. This seminar was attended by automation product distributors from Central and South America. Our presentations included technical information on the Integrated Family of CC-Link networks, CC-Link promotional tools available to distributors, descriptions of CC-Link applications throughout the world, and

information on available CC-Link compatible products from numerous manufacturers (CLPA Partner companies). This seminar will enable these automation product distributors to more effectively promote the use of CC-Link networking in their countries. CLPA-North America also plan to conduct a CC-Link seminar in Sao Paulo, Brazil during August.



CC-Link in Europe

CC-Link Promotion Partner has started localized activity!

CLPA-Europe is continuing to expand its European localization programme with CC-Link Promotion Partner in Ukraine and in Poland. The CC-Link Promotion Partner, which is authorized by CLPA, is able to offer commercial and technical advice on CC-Link, offer support to automation product manufacturers on how they can implement CC-Link connectivity, co-ordinate local CLPA member activities, work closely with local universities to inform technology students about fieldbus trends in automation, and conduct localized CC-Link marketing activities such as PR, advertising, roadshows and exhibitions in these diverse and

geographically large country. MPL TECHNOLOGY in Poland, which is the first Promotion Partner in Europe, held the Opening Ceremony in January. Mr. Andrey Barylko, CEO of MPL states "CC-Link is a world class global fieldbus network. Here in Poland we are having more and more requests to support this technology and it is a great opportunity and compliment that this is the first country in Europe where CLPA has started this localized activity". The new Promotion partner, CSC Automation in Ukraine, announced and started activities at the Elcom 2007 exhibition at the Kiev Expo Plaza in April.

Michael Bubnov, Sales and Marketing Director of CSC said "We are very pleased to be able to be a Promotion Partner of the CLPA and open this local centre. Ukraine is a very dynamic marketplace and customers are demanding increased information on global automation technologies and the services we will offer on a local level will help meet this need regarding open fieldbus. We believe that CC-Link will give a major benefit to automation customers in Ukraine as it is a technically superior product and is much more tolerant to application environments than most other fieldbus solutions".



Polish marketplace acknowledges CC-Link

As a reward for its technological achievements and its popularity with users, CC-link has been awarded the prestigious "Network product of the year" by the Polish magazine Napedy I Sterowanie (Drives and controls) which is the largest Automation magazine in Poland. This award was decided on from

a panel of illustrious leaders in the field of automation technology in Poland and the panel included professors from the best technical universities in Poland, the technical editor of the magazine and also by a poll of magazine readers.



CC-Link in China

The ceremony and the forum to celebrate the 5th anniversary for CC-Link was held in China

In December 2006, the CC-Link fifth anniversary ceremony was held in China by the CC-Link Partner Association (CLPA) and the "Integrated automation technology and application forum" organized by Tongji University. Tongji University, in Shanghai, has a close relationship with CLPA. Many attendees celebrated the remarkable breakthrough of CC-Link in China during these five years and the ceremony ended on a high note. Many officials of the Chinese government, Chinese automation technology organizations, and CC-Link users and vendors attended this forum. In the keynote speech, the commissioner of the Chinese Association of Automation and the professors of Tongji University and Shanghai Jiaotong University made

presentations on their study fields with "Integrated automation (FA integrated technology) as the main theme. In addition, Mitsubishi Electric Corporation, one of the CLPA board of directors, introduced "Integrated Automation (Mitsubishi FA integration concept)" which included the theme of "Leading the developments of future manufacturing industry... Integrated Factory Automation". Finally, Shanghai R&R Technology Development Co.,Ltd, which is a CC-Link networking user, presented examples and benefits of CC-Link installations. The fifth anniversary ceremony was held after the forum. Additional CC-Link users and vendors as well as the attendees of the forum joined. An active interchange of ideas occurred and the



diffusion of CC-Link was celebrated. During this event, persons who had especially contributed to the diffusion of CC-Link in China were given awards. Representatives of the CLPA Board of Directors (IDEC Corporation, Woodhead Japan Corporation, Digital Electronics Corporation, and Mitsubishi Electric Corporation), who had come from Japan, presented anniversary cups and gifts to the award winners.

The Conformance Test Center was established in China.

This spring, the CC-Link Conformance Test Center was established in China joining the test centers in Japan, United States, and Korea. In China, many CC-Link products manufactured by Chinese CLPA partners have already been released. These were tested and certified by Japanese testing facilities. Many CLPA partner manufacturers in China are now preparing for development and mass production of CC-Link compatible products. The new Chinese CC-Link testing facility will accelerate the development of CC-Link compatible products in China and will increase the diffusion of CC-Link network technology.



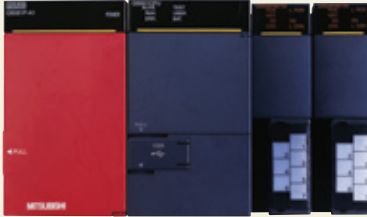
New CC-Link Product



CC-Link Safety Master Module and Remote I/O Module Mitsubishi Electric Corporation

Master Module QS0J61BT12

- The module is approved for use in safety systems requiring the highest safety level (IEC61508 SIL3, EN954-1/ISO13849-1 category 4)
- Safety remote stations and standard remote stations can be installed together on the same network. Safety remote station parameters can be set easily by using GX developer software.



Remote I/O Module QS0J65BTB2-12DT

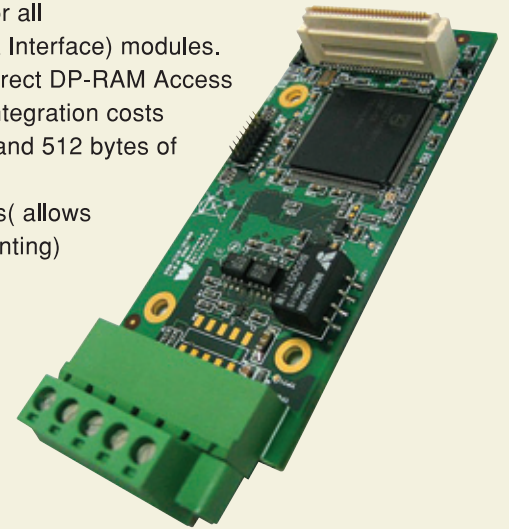
- Safety systems requiring EN954-1 category 3 or category 4 can be configured using these modules and following proper wiring techniques and parameter settings.
- For the fail-safe operation, self-diagnostics can be activated to detect failures inside the module. If a failure is detected, outputs are turned off safely.



CC-Link Embedded Network Interface Woodhead Industries

Embedded Network Interface SST™DC100CCS

- One common interface for all ENI (Embedded Network Interface) modules.
- Simple integration with direct DP-RAM Access
- Lower engineering and integration costs
- Up to 512 bytes of input and 512 bytes of output data
- Very compact dimensions (allows horizontal or vertical mounting)



Exhibition Schedule

CLPA booth exhibition at shows throughout the world. Don't miss the opportunity to learn about new CC-Link developments.

Again this year, the CC-Link Partner Association will join in several exhibitions throughout the world and will present new CC-Link technology, new applications and

updated product information, and introduce the new safety open field network "CC-Link Safety". We are looking forward to seeing you in our booth. !

The International Robots and Vision Show

Date June 12th to 14th, 2007 **Location** Chicago, Illinois (USA) **Booth** #1836

The international Robots and Vision Show is held just once every two years and is the world's leading robotics and vision equipment event. This year it is co-located with Sensors Expo. CLPA-North America will display CC-Link compatible products and will promote the newly introduced CC-Link Safety network and CC-Link Technology.

SEMICON West 2007

Date July 17th to 19th, 2007 **Location** Moscone Center, San Francisco (U.S.A) **Booth** #6656 North Hall

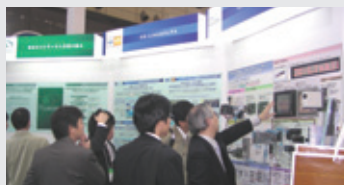
SEMICON-West is the premier annual event for the global microelectronics manufacturing industry. It showcases companies and products that drive the future of technology development and manufacturing. CLPA-North America will display CC-Link compatible products and will promote the newly introduced CC-Link Safety network and CC-Link technology.



SYSTEM CONTROL FAIR 2007

Date November 13th to 16th, 2007 **Location** Tokyo Big Sight (Ariake), Tokyo(Japan)

This is the biggest exhibition of Factory Automation in Japan. CC-Link Network has become the most popular open field network in Japan. We will present CC-Link Technology advances, and introduce new CC-Link compatible products and describe the advantages of CC-Link Networking.



SEMICON Japan 2007

Date December 5th to 7th, 2007 **Location** Makuhari Messe, Tokyo (Japan)

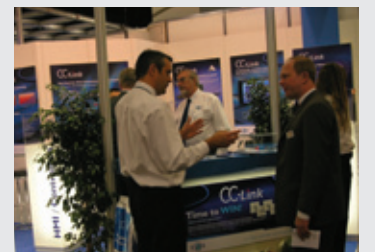
SEMICON Japan is the international exhibition of semiconductor equipment and materials which is sponsored by SEMI at eight locations worldwide. CLPA has continuously exhibited at these shows since the year CLPA was established. We will introduce CC-Link solutions for the semiconductor industry including new technology and numerous new CC-Link compatible products.



SPS/IPC/DRIVES 2007

Date November 27th to 29th, 2007 **Location** Exhibition Center, Nuremberg (Germany)

SPS/IPC Drives show has attracted attention as the largest FA technology exhibition in Europe. It is becoming larger and more important each year and the list of exhibiting companies has increased again this year. The CLPA booth will promote the CC-Link Safety network and new CC-Link technology, and various CC-Link solutions. CC-Link compatible products manufactured by CLPA partners will be on display.



CC-Link Partner Association

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