MECHATROLINK NEWS
MMA-FLASH
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MECHATROLINK News “MMA-FLASH” brings the latest MECHATROLINK information.

Feature Article *MMA Members Talk*

Ten Years of Working with MECHATROLINK and Enjoying the Growth of MECHATROLINK as an Open Field Network.

We deliver the latest news and information to MMA member companies and MECHATROLINK users in our feature articles. For this issue, we asked Kazuhiro Hara, Group Chief of YOKOGAWA ELECTRIC CORPORATION, and an MMA executive committee member since the MMA’s establishment, to talk about his enthusiasm for MECHATROLINK and our future activities.

Early Introduction of Open Network MECHATROLINK

YOKOGAWA ELECTRIC CORPORATION has worked to promote the use of MECHATROLINK and the development of MECHATROLINK compliant products as an MMA executive committee member since the establishment of the MMA.

YOKOGAWA is engaged in the development and sales of programmable controllers (PLC) designed to be integrated into various types of manufacturing systems, including those for semiconductors and electronic parts. A great many motors and peripheral devices are used in manufacturing systems. Conventionally, the mainstream method of connection between a controller and a motor/drive has made use of a pulse reference and analog reference, and therefore a large number of wires has been required. As the numbers of motors/drives and peripheral devices required for a system increase as the system becomes more sophisticated, this creates the need for more labor to check the increased wiring and operations, as well as to handle increased potential problems.

It was these circumstances that led to the establishment of the MECHATROLINK Members Association (MMA) to promote MECHATROLINK as an open network. When it was established, MECHATROLINK was designed for the manufacturer’s in-house private network. YOKOGAWA, however, recognized the need to develop MECHATROLINK as an open network and agreed to become an MMA executive committee member. At the time of its establishment, we never imagined that the MMA would celebrate its 10-year anniversary and grow to be an association of over 1000 registered member companies.

Focused on Increasing Transmission Speed Rates and Data Rates

YOKOGAWA recently developed and released the first MECHATROLINK-Ⅲ compliant PLC positioning module. Although we already had MECHATROLINK-Ⅱ compliant products on the market, we were responding to the needs for higher transmission speeds and data rates for the recent overall trends of increasing the speed and functionality of systems. A higher transmission speed can not only minimize the control cycle and startup time, but can also contribute to improved control over equipment, reduction of tact time, and improved productivity. The higher transmission data rate makes it possible to receive operation status and alarm information from connected motors/drives and peripheral devices, resulting in improved system data coordination and reduced downtime. The MECHATROLINK-Ⅲ compliant positioning modules have met with rave reviews from many customers.

YOKOGAWA also actively participates in MECHATROLINK promotional activities, by participating in exhibitions and seminars not only in Japan but also overseas to introduce our MECHATROLINK compliant products. When looking at the increasing numbers of

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MECHATROLINK compliant products and visitors to the exhibitions and seminars, we can appreciate the increased awareness and familiarity with MECHATROLINK. This coming November, the biennial System Control Fair 2011 will be held at Tokyo Big Sight. We are looking forward to seeing many of you at the MMA booth as well as at the YOKOGAWA booth.


FA-M3V

YOKOGAWA works for the Marketing Group of the MMA, as well. Listening to customer feedback and needs is essential to the promotion of a network protocol such as MECHATROLINK. YOKOGAWA will continue with constructive activities for the promotion of MECHATROLINK by preparing application sheets, and by visiting customers for a frank exchange of opinions.

Product Development and Promotional Activities to Meet Customer Needs

The key requirement for us is the confirmation of connectability between MECHATROLINK compliant products. A wide selection of compatible products, the easy-to-connect feature, and high performance are all important for an open network system using MECHATROLINK. A network where the number of connectable devices is limited or where an excessive workload is required for connection will not be accepted no matter how high the performance. I have had many occasions to talk with customers, and often receive questions such as, “The use of the network reduces the number of wires, but how about connections?” or, “I feel uncomfortable in case of an unforeseen occurrence because its cause may be invisible.” To build customer confidence in our products, YOKOGAWA conducts a connectability confirmation test with YOKOGAWA’s master modules for all newly released MECHATOLINK compliant products. Until there is proof of connectability, even if the products have passed the MECHATROLINK compliance test, you cannot have confidence in them, can you?

Requirements for controllers that are integrated into systems, such as PLCs, can be more diversified. YOKOGAWA will continue to promote the use of MECHATROLINK and to develop compliant products, satisfying customer requirements for high speed and functionality and offering added value via information technology.

News & Topics

Exhibitions at System Control Fair 2011 and SEMICON Japan 2011

The MMA will participate in System Control Fair 2011 and SEMICON Japan 2011. This year’s presentation, “The Beat of the Machine,” is based on the theme of proving the high performance of MECHATROLINK, through which connected slave machines can accurately respond to a master.

A renewed MECHATROLINK-Ⅱ and MECHATROLINK-Ⅲ networking demonstration system will be displayed at each exhibition, with the compliant products of member companies connected. A presentation will be also given using the demonstration system. Why not visit the MMA booth to feel the beat of the machine controlled through MECHATROLINK?

We are looking forward to seeing you at these exhibitions.


Planned design for MMA boot at System Control Fair 2011

System Control Fair 2011/10/22

Event Information

Dates: November 16 (Wed) – 18 (Fri), 2011

Place: Tokyo Big Sight Booth No.: West Hall 2-12

SEMICON Japan 2011

Event Information

Dates: December 7 (Wed) – 9 (Fri), 2011

Place: Makuhari Messe Booth No.: 5C-701

Main companies who will exhibit their products:

- ALGOSYSTEM CO., LTD.
- ANYWIRE CORPORATION
- ORIENTAL MOTOR CO., LTD.
- NIKKI DENSO Co., Ltd.
- YASKAWA ELECTRIC CORPORATION
- YOKOGAWA ELECTRIC CORPORATION
- M-SYSTEMS CO., LTD.
- KOYO ELECTRONICS INDUSTRIES CO., LTD.
- Sankyo Seisakusho Co., Ltd.
- TIETECH CO., LTD.
- Digital Electronics Corporation
- Micronet Corporation
- MYCOM INC.

MECHATROLINK Seminars

The MMA will present seminars on the following topics at the MMA booth during the exhibition.

①11:00 to 11:10
How to Develop MECHATROLINK Compliant Products
②12:00 to 12:10
Demonstration of MECHATROLINK Network System
③13:00 to 13:10
How to Develop MECHATROLINK Compliant Products
④14:00 to 14:10
Demonstration of MECHATROLINK Network System
⑤15:00 to 15:10
How to Develop MECHATROLINK Compliant Products
⑥16:00 to 16:10
Demonstration of MECHATROLINK Network System

News & Topics

Report on MECHATROLINK Seminar in Shanghai

The MMA organized a MECHATROLINK seminar at Radisson Hotel Shanghai in China on Oct. 20 (Wed), 2011. The seminar room was almost full with over 100 participants.
The seminar was prepared by the MMA Shanghai office and started with an opening speech by Takeshi Tanaka, the General Secretary of the MMA. The seminar included many interesting topics, such as the introduction of MEHCATROLINK compliant products by four manufacturers, the speeches on the actual experience and result of adoption of MECHATROLINK by four Chinese member companies, and the Q & A session. The manufacturers, speakers and participants actively participated in the Q and A session. In addition, many participants gathered in front of the display of the products introduced during seminar, to ask the manufacturers for detailed information on each product. Through this seminar, 32 companies newly joined the MMA, and we recognized that the expectations for and interest in MECHATROLINK is also high in China. We will continue our activity to promote the use of MECHATROLINK in China.


Seminar


Introduction of products


Display of products

Taipei International Industrial Automation Exhibition 2011 Report

The MMA participated in the Taipei International Industrial Automation Exhibition 2011, held at the Nangang Exhibition Hall in the Taipei World Trade Center (NWTC) from August 31 (Wed) to September 3 (Sat), 2011. This year, the MMA used its own booth to promote MECHATROLINK to the Taiwanese market at the exhibition.

At the booth, MECHATROLINK-Ⅱ and MECHATROLINK –Ⅲ compliant products produced by member companies were displayed so visitors could see how they operate, and a MECHATROLINK networking system of Taiwanese manufacturers was demonstrated. The superior performance of MECHATROLINK and its compliant products attracted numerous visitors, and there were always crowds in front of the booth. We counted roughly 900 visitors to the MMA booth during the exhibition, which was an undisputed success.

On September 2, we held an MMA general meeting for Taiwanese companies, and reported on the current status of the MMA. In the meeting, the products of member companies were introduced, and Taiwanese manufacturers and MECHATROLINK users delivered speeches. The exhibition and general meeting have helped to ensure the further spread of MECHATROLINK in the Taiwanese market. The MMA will continue to actively promote the use of MECHATROLINK in Taiwan.

MMA general meeting (Taiwan)


Products from Art Control Systems


Products from LNC Technology

MMA booth

New MECHATROLINK Products

YASKAWA ELECTRIC CORPORATION

Σ-Vmini Ultra-Compact AC Servo Drives

Ultra-compact 3.3 to 30 W AC servo motor models and applicable DC power input supported drives have been newly added to the Σ-V series lineup, adding to the favorable reputation it has gained in the marketplace since its release in April 2007.

Features

More compact than ever

The ultra-compact drive enables more effective use of limited space, and opens up more space for the controller and equipment.

DC power input supported

The battery-powered, ultra-compact, and high-performance servo drives makes battery-powered transport systems such as clean robots and clean Automatic Guided Vehicles (AGV) much more efficient.

Cutting edge technologies for superior performance and ease of use

The new advanced auto tuning function allows you to achieve an optimal setup for your system in minimal time. The following functions are also provided: Model following control to minimize positioning time, vibration suppression function to suppress vibrations from equipment, friction compensation function for high load-variation applications, and the new tuning less function for system operation startup and for high load-variation applications.

◆ Specifications

Item		Specifications	
		SGDV-□□□E21□	SGDV-□□□E11□
Performance		Speed – Frequency characteristics: 1.6 kHz (Load conditions: Load inertia JL=Motor inertia JM)	
		Torque control accuracy Repeatability) : ±1%	
MECHATROLINK Communications	Control Specifications	Position control, speed control and torque control through MECHATROLINK-III communications	Position control, speed control and torque control through MECHTROLINK-II communications
	Command Type	MECHATROLINK commands for sequence, motion, data writing/reading, monitoring, adjustment, etc.	
Applicable Motor Capacity		3.3 W to 30 W	
Encoder Resolution		17 bits (absolute encoder only)	
Standards Compliance		UL, CE (EMC, Low Voltage Directive), RoHS Directive	

◆ MECHATROLINK Specifications

	MECHATROLINK-Ⅲ		
	16byte	32byte	48byte
Master			
Slave	○	○	○
Transmission Cycle (ms)	0.125～4ms	0.125～4ms	0.125～4ms

	MECHATROLINK-Ⅱ	
	17byte	32byte
Master		
Slave	○	○
Transmission Cycle (ms)	0.25～4ms	0.25～4ms

Inquiries

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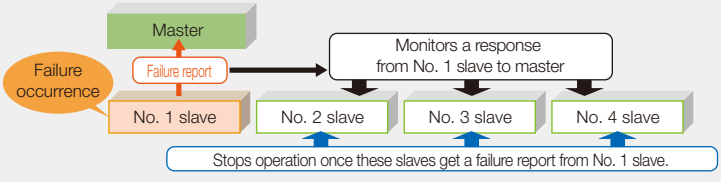
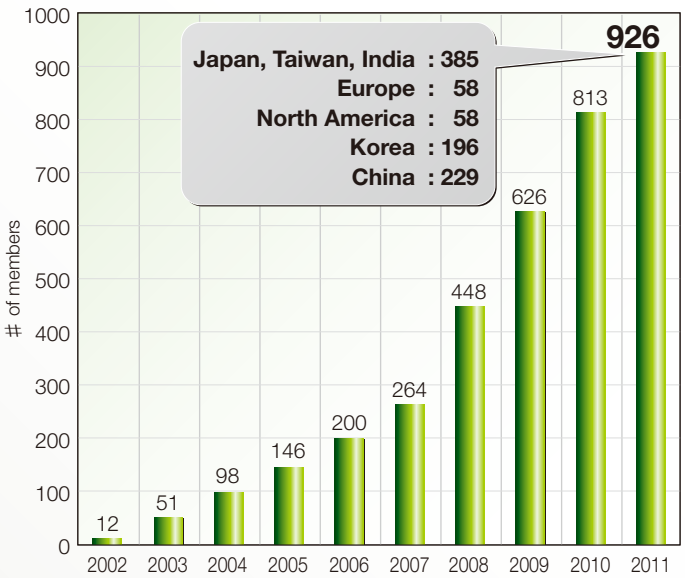
Column MECHATROLINK-Ⅲ Monitor Slave Function

MECHATROLINK-Ⅲ has a Monitor Slave function that allows a slave to monitor data sent from other slaves to the master.
Previously, there was no way for a slave to obtain the status information of other slaves, as each slave communicated only with the master. With the Monitor Slave function of MECHATROLINK-Ⅲ, however, a slave can get status information directly from other slaves by monitoring the data sent from other slaves to the master.
This function is especially effective in systems that require the control of motors in coordination with other motors, such as in a gantry system. Once a slave station receives motor failure information from another slave station connected on the same MECHATROLINK-Ⅲ network, the slave can immediately take action to stop the motor of the local station.



MMA Membership as of October 31, 2011



Editor's Comment

For the Feature Article on this issue, YOKOGAWA ELECTRIC CORPORTION kindly accepted to talk about MECHATROLINK and the MMA. YOKOGAWA has been worked with the MMA not only as an executive committee member but also as a Marketing Group member and Safety Working Group member, and participated in variety of promotional activities. We always feel the importance to listen to the member companies and the MECHATROLINK users and enjoy the opportunities to exchange opinions with the member companies through various events and by visiting them. Written by Hiranuma.

Inquiries

For questions about joining MECHATROLINK Members Association and other inquiries, please contact the MMA.

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