



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

**Feature Article***An interview with Yaskawa Electric Corporation*

## **Mission of the MECHATROLINK Developer: Full-scale Introduction of New Technologies and Functions to Promote the Spread and Standardization of MECHATROLINK Globally**

We deliver the latest news and information to MMA member companies and MECHATROLINK users in our feature articles. For this edition, we spoke to Junichi Nakano, Manager of the Business Planning Department, Motion Control Division of Yaskawa Electric Corporation, about the positioning of MECHATROLINK in Yaskawa and the future prospects of MECHATROLINK.

**Q1. Tell us about your relationship with MECHATROLINK.**

—We started development of the new communication technology, MECHATROLINK, from the latter half of 1980s to upgrade the functionality and performance of our motion control products for the machine tool and robot markets. While using this communication technology for our motion control products, we established the MECHATROLINK Members Club (MMC) in 2003 to open MECHATROLINK and make it a global standard. In 2005, we, together with other board committee member companies, established the MECHATROLINK Members Association (MMA) to further promote the use of MECHATROLINK.

Today, we have a full lineup of products equipped with the MECHATROLINK interface as the standard to maximize motion control performance.

### **Commitment to making MECHATROLINK an open network**

**Q2. Tell us why you opened MECHATROLINK.**

—From the latter half of 1990s, we started to incorporate our MECHATROLINK products into various FA control equipment products for semiconductors, machine tools, and robots. While using MECHATROLINK for our products, we sensed the increasing demands of other control product manufacturers for network compatibility and wire-saving that MECHATROLINK can provide. After 2000, the market needs for networking accelerated. The speed of the movement toward opening and standardizing various networks around Europe and America also led to an increase in these market needs. At the same time, the needs for motion control increased. To respond to the need for networking and motion control, we opened MECHATROLINK as a Japanese

original open motion control network to bring it up to global standards.

Yaskawa actively supports various MMA-related events as a member company of the MMA board committee. We are willing to contribute to the global promotion of the spread and development of MECHATROLINK by offering new motion control technologies and products that highlight the features of MECHATROLINK.

**Q3. Tell us about your approach to the standardization of MECHATROLINK.**

—As the developer of MECHATROLINK, we manage issues to meet the requirements of various standards, and are pleased that MECHATROLINK has acquired both SEMI standard certification and IEC standard certification in August this year. The compliance of MECHATROLINK with the SEMI and IEC standards adds definitive value to the use of MECHATROLINK and contributes to the global expansion of MECHATROLINK products. We hope that the adoption of MECHATROLINK as an international standard will help all MMA member companies with global product development.

We will study other regional or national standards and take necessary actions accordingly.

### **Successive release of new products and technology**

**Q4. Can you tell us about Yaskawa's new products and technologies that specifically highlight the features of MECHATROLINK?**

—We released the MECHATROLINK compliant Machine Controller MP3300 and AC Servo Drives  $\Sigma$ -7 Series in November 2013.

The basic performance and functions of these new products have been improved and feature the high synchronization and

Junichi Nakano  
General Manager  
Business Planning Department  
Motion Control Division  
Yaskawa Electric Corporation



and feature the high synchronization and reliability for which MECHATROLINK-III is well-known. These products have received good feedback from the market because of their improved operability and maintenance functions, such as its preventive maintenance function which uses a message communication function and energy monitoring, which reduces total costs.

The MECHATROLINK-compatible gateway module GW3100 is available to seamlessly connect MECHATROLINK-II devices to MECHATROLINK-III networks. The GW3100 makes it possible to offer a customer the best motion system for their needs with a rich selection of MECHATROLINK products, including multi-vendor products.

#### Q5. How will you develop MECHATROLINK in the future?

—We will actively work on the global development of new MECHATROLINK compliant products, as well as the development and application of new features, such as new functions and technologies, for MECHATROLINK itself. This will help us drive

MECHATROLINK forward to become a de facto standard for motion field networks.

We will do our best to serve MMA members and MECHATROLINK users as a member company of the MMA board committee to further promote the use of MECHATROLINK.



Machine Controller MP3300 and AC Servo Drive Σ-7 Series

MECHATROLINK Compatible Gateway Module GW3100

## News & Topics

### Exhibition & Event Information

**Automation Components Fair 2015**  
 Leading solution for global manufacturing: MECHATROLINK

~ The Beat of the Machine ~

The Automation Components Fair is an event where all the MMA members gather to provide the latest information on networking and exhibit new products.

This year, the exhibits will include both MECHATROLINK-related products and other system components.

This fair is a good opportunity for you to find out what you need for your system configurations. We are looking forward to seeing you at the fair.

Visit the following web site to purchase advance tickets.  
One drink will be offered per ticket to those who purchase advance tickets.

<http://www.mechatrolink.org/jp/>

#### Event Information

Feb. 12 (Thurs), 2015  
Fair in Kyoto  
Venue: KYOTO PULSE PLAZA  
(Exhibition Hall 1)  
Time: 13:00 to 17:00  
★Free parking (250 parking spaces)

Feb. 13 (Fri), 2015  
Fair in Hamamatsu  
Venue: Hamamatsu City Synthesis  
and Industry Exhibition Pavilion  
(Exhibition Hall 3)  
Time: 13:00 to 17:00  
★Free parking (400 parking spaces)

#### Keynote Speeches and Seminar

##### Keynote Speeches

Admission free



**“Current and Future Prospects for M2M (Machine-to-Machine) Business and IoT (Internet of Things) Business to Achieve Innovation in Manufacturing”**

##### Speakers: Kazunari Murata

Sales Promotion Department, Network Services Division  
NTT Communications

##### Masaharu Takehara

Solution Development Department, New Business Promotion  
Yaskawa Information Systems Corporation

Time: 14:00 to 15:00

##### MMA Seminar

**Introducing the MMA and reporting on the latest activities.**

Time: 14:00 to 15:00

##### Product Introduction

**Yaskawa Electric Corporation, Yokogawa Electric Corporation, Micronet Co., Techno Co., Ltd., and Nexcom Japan Co., Ltd.**

Time: 15:10 to 16:50

##### Exhibitors

- |                                   |  |
|-----------------------------------|--|
| • Algosystem Co., Ltd.            | • Nichigoh Communication Electric Wire Co., Ltd. |
| • Anywire Corporation             | • Nihon Electric Wire & Cable Co., Ltd.          |
| • Azbil Corporation               | • Nikki Denso Co., Ltd.                          |
| • Digital Electronics Corporation | • Oriental Motor Co., Ltd.                       |
| • Endo Kogyo Co., Ltd.            | • Techno Co., Ltd.                               |
| • Harmonic Drive Systems Inc.     | • Tokyo Electron Device Ltd.                     |
| • Hilscher Japan KK               | • Yaskawa Controls Co., Ltd.                     |
| • HMS Industrial Networks AB      | • Yaskawa Electric Corporation                   |
| • Hokuyo Automatic Co., Ltd.      | • Yaskawa Information Systems Corporation        |
| • M-System Co., Ltd.              | • YE Data Inc.                                   |
| • Micronet Co.                    | • Yokogawa Electric Corporation                  |
| • Nexcom Japan Co., Ltd.          | (23 companies in total)                          |



## Certification of MECHATROLINK as International Standard (IEC61784/IEC61158)

MECHATROLINK acquired certification for IEC61784 and IEC61158 international standards from the IEC in August 2014.

IEC61784 and IEC61158 are international standards for specifying industrial computer network protocols. It is expected that the adoption of MECHATROLINK as a standard by the IEC will help promote the worldwide use of MECHATROLINK and contributing greatly to improving the productivity of manufacturing sites around the world.



## Report of Exhibitions and Seminars

### Taipei International Industrial Automation Exhibition 2014

The MMA participated in the Taipei International Industrial Automation Exhibition 2014 held at the Taipei World Trade Centre Nangang Exhibition Hall (TWTC Nangang) from August 27 (Wed) to 30 (Sat), 2014 to promote the use of MECHATROLINK in the Taiwanese market.

At the MMA booth, many visitors were attracted by powerful performance of MECHATROLINK compliant products. Demonstrations of system operation with a wide lineup of products connected and controlled through MECHATROLINK were held so that the visitors appreciate the merits of MECHATROLINK. The MMA booth received over 1,500 visitors during the 4-day exhibition.

The MMA will continue its promotional activities to further expand the use of MECHATROLINK in Taiwan.



Demonstration by Art Control Systems, Inc.

### Automation 2014 in India

The MMA participated in Automation 2014 held at the Bombay Convention & Exhibition Center (BCEC) in Mumbai, India from October 15 (Wed) to 18 (Sat), 2014 to promote MECHATROLINK in India.

This exhibition is the focus of much attention in India and attracts the participation of many companies associated with the industrial automation field. Although this was the first year for the MMA to participate in this event, the MMA was popular with visitors who were interested in MECHATROLINK. Demonstrations of MECHATROLINK compliant products impressed many visitors with its high-speed control and high reliability.



We will continue working to raise the profile of the MMA and promote the use of MECHATROLINK in India.



Display of MECHATROLINK compliant products

### 16th China International Industry Fair, Robotic Show (RS2014)

The MMA participated in the 16th China International Industry Fair, Robotics Show (RS2014), held in Shanghai from November 4 (Tues) to 8 (Sat), 2014.

The MECHATROLINK-III compliant products developed by local Chinese MMA member companies were prominently displayed at the MMA booth.

The booth also displayed a system that connected the products of MMA member companies through MECHATROLINK-III to demonstrate the openness of the MECHATROLINK network. The visitors enthusiastically talked with engineers about the details of each product.

During the 5-day fair, a great number of people stopped by the MMA booth and learned about the advantages of MECHATROLINK, including its open network, high speed, and low costs. As a result, many new members joined the MMA.

We will continue our promotional activities to expand the use of MECHATROLINK in China.



MMA booth

## New MECHATROLINK Products

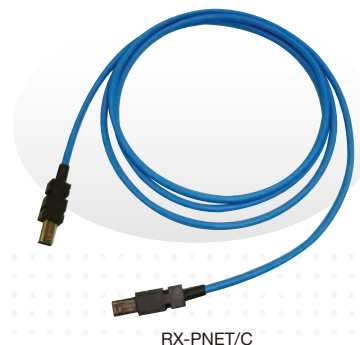
Nihon Electric Wire & Cable Co., Ltd.

### “MECHATROLINK-III Cable RX-PNET/C (for movable parts)”

The RX-PNET/C is an Ethernet cable for movable parts that is compatible with MECHATROLINK-III and supports EMI.

#### Features

1. Communications features: Complies with ISO/IEC11801 Cat. 5 and TIA/EIA-568C.2 Cat. 5e.
2. Safety standards: Complies with UL/c-UL (UL AWM 20276, CSA C22.2 No. 210).
3. Flex resistance: Passed 90-degree right and left flexing test repeated 10,000,000 times
4. Environmental resistance: With oil-resistant and heat-resistant PVC jacketComplies with RoHS Directive and meets the requirements of REACH for SVHC (Substances of Very High Concern) List
5. Other: Sequentially marked on jacket (length mark) for easy measuring



RX-PNET/C

Inquiries

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20-1, 7-Chome, Fukushima, Fukushima-ku, Osaka-shi, Osaka, 553-0003, Japan

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#### Column

### IEC61784 and IEC61158 International Standards

MECHATROLINK acquired certification for IEC61784 and IEC61158 international standards in August 2014. This edition outlines how and to what specifications MECHATROLINK is applied.

#### ■ IEC61784 and IEC61158

IEC61784 and IEC61158 are international standards for specifying industrial computer network protocols (on right).

#### ■ MECHATROLINK-applicable IEC Documents

IEC documents		MECHATROLINK	
		MECHATROLINK-II	MECHATROLINK-III
IEC61784-1 (-24)	Fieldbus profile	✓	✓
IEC61784-5 (-19)	Installation	✓	✓
IEC61158-1	Overview and guidance for the IEC61158 series	Common	Common
IEC61158-2 (-24)	Physical Layer Specification and service definition	✓	✓
IEC61158-3 (-24)	Data-link layer service definition	✓	✓
IEC61158-4 (-24)	Data-link layer Protocol definition	✓	✓
IEC61158-5 (-24)	Application layer service definition	✓	✓
IEC61158-6 (-24)	Application layer Protocol definition	✓	✓

#### • IEC61784

Specifies the network specifications as “Profile.” Describes the protocol stack structure and the specifications that is applied to each stack.

IEC61784-1 (Fieldbus profile) is applied to MECHATROLINK, and the respective documents are prepared.

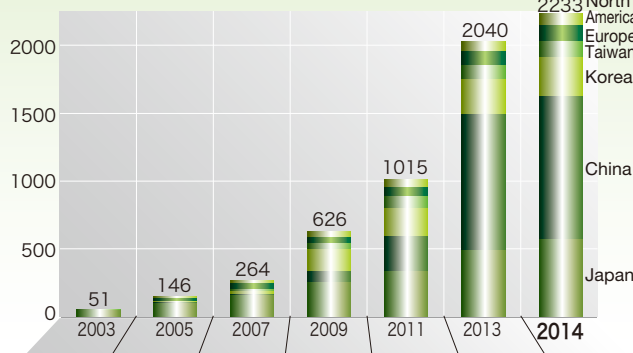
#### • IEC61158

Describes the details of specifications applied to each protocol stack that are specified in “Profile” of IEC61784 as “Protocol and Service”.

Standards IEC61158-1 to IEC61158-6 are applied to MECHATROLINK, and the respective documents are prepared

#### MMA Membership as of November 30, 2014

Japan (ASEAN) : 565  
China : 1017  
Korea : 292  
Taiwan : 113  
Europe : 121  
North America : 85



#### Editor's Comment

There are only a few days remaining this year. I feel that time passes even faster as I get older. How did you find this year? For me, it was a satisfying year filled with wonderful encounters. I want to make a fresh start in 2015 and challenge myself. (Written by Hiranuma.)

Inquiries

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

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