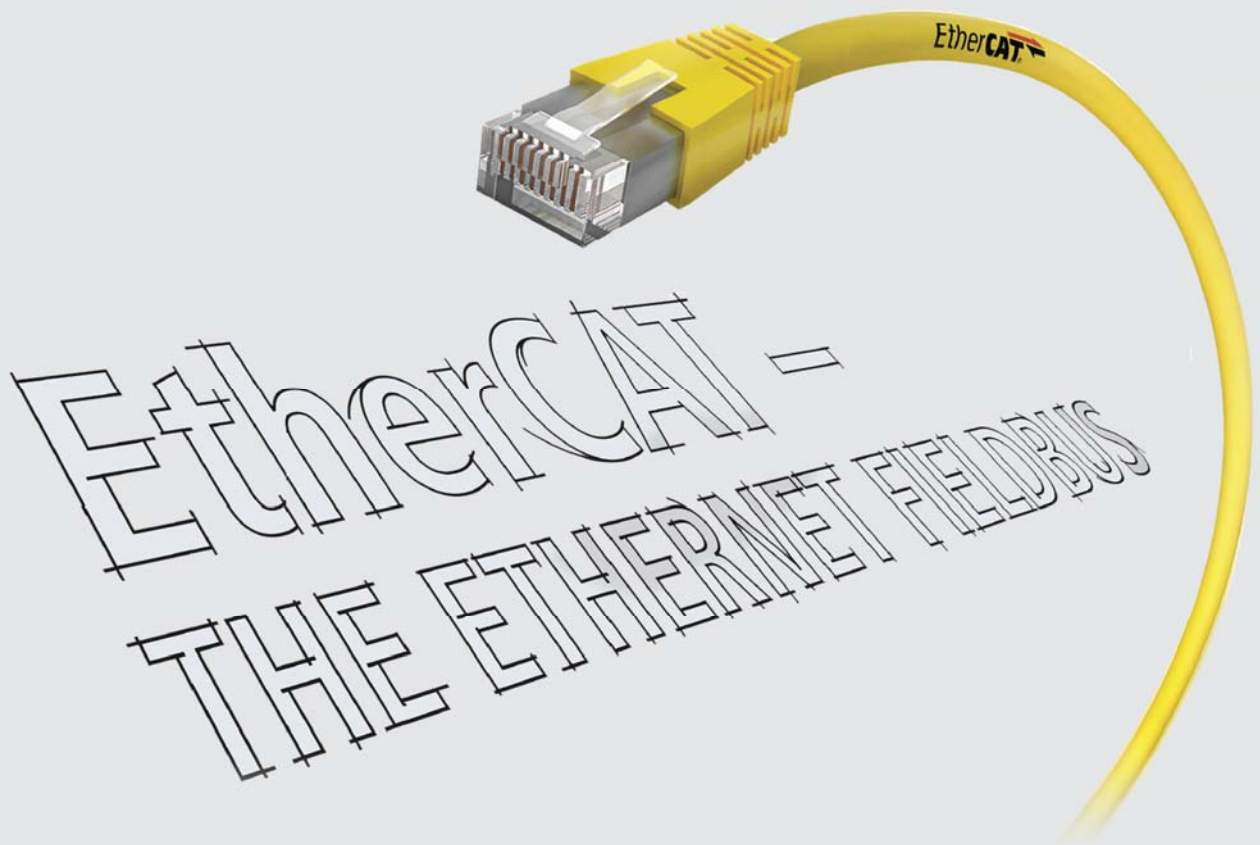


# ETG Newsletter

May 2015 | #26



**EtherCAT**   
Technology Group

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## Further Information

[www.ethercat.org](http://www.ethercat.org)

## EDITORIAL

Dear Members,

Industrie 4.0 and the industrial Internet of Things (IoT) are the hot topics at every event that we attend – in Europe, Asia as well as in North America .

At the recent Hannover Fair we have launched an initiative for Industrie 4.0 and IoT: we agreed to closely cooperate with the OPC Foundation in defining common interfaces between our technologies. With this initiative we create the prerequisites to integrate EtherCAT systems consistently into Industrie 4.0 and IoT architectures. The other hot topic with regards to Ethernet communication is TSN: we do not only monitor the related activities within IEEE, but actively contribute to the development, as you can see in this newsletter.

With best regards on behalf of the entire EtherCAT Technology Group Team,



Martin Rostan, Executive Director



## TSN

## Interview about TSN with Dr. Karl Weber



## What is TSN?

Dr. Karl Weber: "TSN is a task group (Time Sensitive Networking) located in IEEE 802 who is responsible for LANs (Ethernet and related standards). It does not change the Ethernet protocol itself but the bridging (switching) procedures.

As of today 7 different projects are assigned to this group: 1. Synchronization enhancements; 2. Frame preemption (interruption of long frames to expedite real time data forwarding); 3. Time aware shaper (TAS - introduce send slots dedicated for real time); 4. Cyclic queueing and forwarding to avoid latency variations caused by race conditions; 5. Seamless Redundancy; 6. Stream reservation enhancements to guarantee a performance class; 7. Per-stream filtering and

policing for isolation of faulty streams.

Most of the projects should be completed end of 2016. Not every real time function is needed in a dedicated real time project e.g. a TAS may not need frame preemption. Thus, TSN is not a standard but a set of specifications and a collection of them may be used to enhance the real time capabilities of local networks."

[Read the full interview on page 2!](#)

*Dr. Karl Weber is EtherCAT specialist, working at the ETG Headquarters and also IEEE group member within several technical working groups.*



## EtherCAT Adoption Rate: Vendors

EtherCAT is wide spread in different markets as well as countries. Please have a look at the following impressive figures:



## Playing with figures (Vol. 2)

We have more than **3200** members from **58** countries and **6** continents. EtherCAT is implemented on **34** different RTOS and over **630** products are entered in the official EtherCAT Product Guide. There are **25** different Safety over EtherCAT vendors and **44** sensor/actor manufacturers. ETG organized **32** EtherCAT Plug Fests so far. ETG booths were shown at **120** tradeshows and EtherCAT roadshows took place in **23** different countries and **68** cities. Over **400** new members joined the ETG in **2014**.

## Interview about TSN with Dr. Karl Weber



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### What is the motivation to enhance networks with TSN functions?

Dr. Karl Weber: "The main driver of TSN was audio-video bridging (AVB, which was the former name of the task group).

Car inside networks require also AV transmissions for the current enhancements of automotive. This high volume markets will push the availability of low cost products with certain real time capabilities that can be used in industrial applications.

TSN is not suitable for typical IO-applications due to the high latency and the low efficiency. The open Ethernet environment causes additional load problems which make it difficult to use it as a robust fieldbus.

TSN is a good choice for integration of machinery and smart devices as a backbone for automation. But TSN is just a transportation infrastructure. This means that a suitable application protocol is needed."

### What does this mean for the automation technology?

Dr. Karl Weber: "First of all this is an emerging technology and not ready to use as of now!

Most of the technology components developed by the EtherCAT community will not be affected at all. As TSN offers a technology enhancement beyond the IO-level there is no reason to change typical field devices.

The critical issue is the seamless integration of the IO subsystem in the higher level systems. But this will not be the task of the individual device manufacturer but will be provided by the EtherCAT Technology Group.

The memorandum of understanding with the OPC Foundation is one of the important steps for seamless integration. The EtherCAT Automation Protocol (EAP) can be enhanced to use TSN as well. This will be a very powerful way to integrate a subset of machines at a cell level."

### What are the next steps towards TSN add on for the EtherCAT community?

Dr. Karl Weber: "First of all: we are contributing actively in the TSN standard development for years and will continue to contribute for the next couple of years. A very important step is to select a subset of TSN protocols for the level above the IO-Infrastructure. With EAP we have the choice to take advantage of TSN within EtherCAT technology. The seamless integration of a set of machinery will be a necessary step for EtherCAT. Machine integration requires a common effort of all automation technology provider.

Thus, EtherCAT will participate in this process but it requires quite a lot of groups to agree on a common base."

[TSN Task Group Website](#)



*Dr. Karl Weber is EtherCAT specialist, working at the ETG Headquarters and also IEEE group member within several technical working groups.*



## ETG and OPC Foundation join forces to focus on common interfaces for Industrie 4.0 and IoT

The EtherCAT Technology Group (ETG) and the OPC Foundation to define common interfaces for Industrie 4.0 and the Internet of Things (IoT), as indicated by a Memorandum of Understanding signed at Hannover Messe 2015.

Both organizations agree that their technologies complement one another perfectly: EtherCAT as the real-time-capable Ethernet fieldbus for machine and plant controls, leveraging the EtherCAT Automation Protocol (EAP) for lean data exchange between masters, and OPC UA as a platform for scalable communication with integrated Security by Design, enabling encrypted data transfer up to MES/ERP systems and into the cloud.

Industrie 4.0 and IoT demand seamless and continuous communication through all layers and levels within the digital factory, as well as externally through cloud-based services and other Internet technologies. The ETG and the OPC Foundation seek to achieve these requirements with the common definition of open interfaces between both of their technologies.



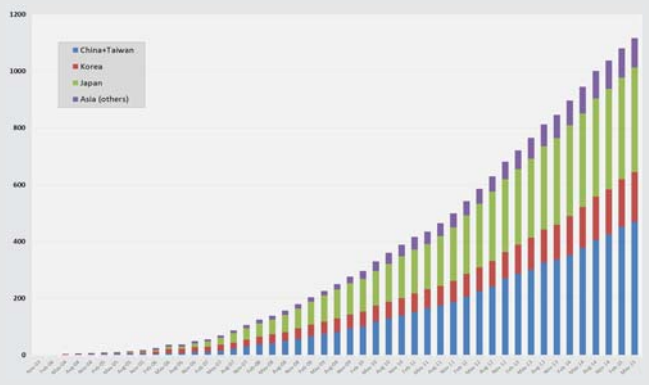
For this reason, the organizations agreed, in the frame of a Memorandum of Understanding (MoU), to develop these interfaces in close cooperation, rather than focusing on their own technology extensions into the core area of the other.

Full Press Release ([EN](#) | [DE](#) | [CN](#))

### Excellent Growth in Asia: > 1100 Members

In September 2014 the EtherCAT Technology Group exceeded 1000 members in Asia – and meanwhile there are more than 1100 members, so that 35% of the ETG membership is from this continent.

China and Japan are approaching 400 members each, Korea 200, and Taiwan 100. Whereas growing membership is nice, what really counts is true adoption of the technology. And here Asia takes a very strong position as well: almost every day we see many new EtherCAT products from Asia!

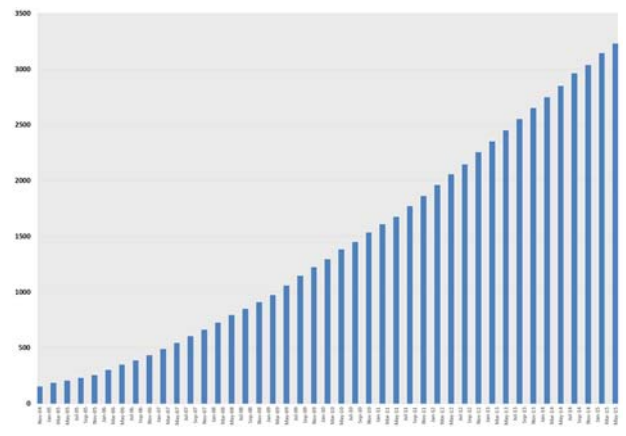


### ETG Membership Development: >3200 Members Worldwide

ETG has reached another significant membership milestone: >3200 Members (as of May 2015)!

With more than 400 new members in 2014 means again more than one new member each day.

We are firmly convinced that the demand of fast Industrial Ethernet systems like EtherCAT around the globe will continue to grow.



## New video about ETG and EtherCAT available!



Within our latest video, our Executive Director, Martin Rostan, summed up the highlights of the past weeks and gave us an update on the development of EtherCAT and the EtherCAT Technology Group.

The main topics discussed were the recently introduced EtherCAT chips by Microchip and Infineon. The Memorandum of Understanding defining the common interfaces has been signed with the OPC Foundation at this year's Hannovermesse. Additionally, we learnt more about EtherCAT's adoption rate and the membership development and composition within the ETG.

[YouTube Video Link](#)

## New official Twitter profile of the ETG is now live



Social media users seeking the latest official news, updates, and events surrounding the ETG can now follow @EtherCAT\_Group on Twitter.

This important step assures an efficient platform to spread news and information, simplifying access to the most recent trending topics about EtherCAT technology and the ETG.



[Full Press Release \(EN | DE\)](#)

## Member #3000 honored: Airbus Operations GmbH

Membership development for the EtherCAT Technology Group (ETG) has reached another major milestone: With the addition of Airbus Operations GmbH, the ETG already passed the 3000 member mark.

An event commemorating this official distinction took place during the SPS IPC Drives 2014 trade show at the ETG joint booth.

[Full Press Release \(EN | DE | CN\)](#)



## 2015 Spring European EtherCAT Plug Fest Breaks Records

The EtherCAT Technology Group's first EtherCAT Plug Fest in 2015 broke several records. Never before have so many companies with so many different EtherCAT devices and so many master-slave combinations for interoperability testing participated in a single Plug Fest.

In addition, the number of EtherCAT Slave Controller (ESC) manufacturers on site was higher than ever – one of them being TRINAMIC Motion Control, who also hosted the event in Hamburg, Germany.

The seeds sown by the ETG during their 2014 Plug Fests continued to grow unabated at the 2015 Spring European EtherCAT Plug Fest in Hamburg, Germany. One reason for this is the fact that the number of available EtherCAT products continues to increase at a rapid pace. On the other hand, the EtherCAT Plug Fests are widely recommended as a highly valuable method to support the development processes of

new EtherCAT devices. A total of 70 participants attended the event, bringing with them 12 different EtherCAT masters and 42 EtherCAT slaves.



[Full Press Release \(EN | DE\)](#)

## ETG Joint Booth at HANNOVER MESSE 2015: Hall 9-D18

Together with 55 co-exhibitors and a total of more than 330 different EtherCAT products we're once again sending out a clear message at our ETG Joint Booth at Hannover Messe 2014: We are the Industrial Ethernet organization exhibiting the widest variety of devices at the same time anywhere.

We had shown an impressive variety of EtherCAT products (incl. Drives, I/O & Gateways, Sensors & Actuators, Master Systems, Development Products & Services) directly on booth and informed all visitors about EtherCAT technology in general and the work of the EtherCAT Technology Group.

Additionally, we bring along our upgraded EAP-Demo showing Industrie 4.0 and IoT via OPC-UA. Live on booth we showed again how a KUKA robot deals with two Beckhoff XTS systems at a time using EtherCAT – and thus enabling groundbreaking new application possibilities in motion.

We an increased number of leads generated with visitors from 40 different countries we thank our co-exhibitors and

supporting ETG members for their contribution!

Watch out for the next ETG Joint Booth offer, which will be available soon and send out to all ETG members worldwide. It includes participation as co-exhibitor at SPS IPC Drives 2014 & HANNVOER MESSE 2015. If you are interested, please get in contact with Mr. Oliver Fels ([o.fels@ethercat.org](mailto:o.fels@ethercat.org)) directly.



ETG Joint Booth 2014/2015 season co-exhibitors and supporting ETG Members:



## Upcoming EtherCAT Plug Fests: Japan, North America, Europe

Mark Your Calendar: The next three EtherCAT Plug Fests 2015 are scheduled: Japan, North America and Europe.

We encourage all vendors of EtherCAT master systems, slave devices, codes and tools to participate in the upcoming 2015 European EtherCAT Plug Fests around the globe. The goal of this developer's event is to perform interoperability tests. Master and slave device suppliers gather to test and improve interoperability, to share implementation tips and tricks and clarify questions regarding the technology. Experts of the technology from ETG will support with their expertise on-site.

Invitations will be provided soon by E-Mail and published on the website (member area news & event section).

[2015 Japanese EtherCAT Plug Fest](#)

Sep 10 – 11, Yokohama, Japan

[2015 North American EtherCAT Plug Fest](#)

Sep 16 – 17, Newark (NY), USA

[2015 Fall European EtherCAT Plug Fest](#)

Oct 28 - 29, Fürth Germany



## MULTIMEDIA

## EtherCAT Functional Principle Video Available



Please find the EtherCAT functional principle video with sub titles available now in different resolutions and languages for internal company usage.

Feel free to use the video to understand and explain the unique EtherCAT functional principle, e.g. for sales or decision makers.

[Download Detail Page](#)

## New Chinese EtherCAT Brochure



Our ETG Office China has created a brand new version of the well-known EtherCAT brochure.

This brochure also introduces the EtherCAT Technology Group (ETG), the world's largest fieldbus organization. Most importantly, we hope to convey why EtherCAT is the right choice for your application.

[Download Detail Page](#)

## SOCIAL MEDIA

## ETG @ LinkedIn, Twitter & YouTube!

Join our several social media channels to stay up-to-date and receive the latest news immediately.

We'll invite all of you to follow our official ETG accounts at the following social media channels. You will find actual news from ETG tradeshows or roadshows, announcements of upcoming events, impressions and much more there!

[www.twitter.com/EtherCAT\\_Group](http://www.twitter.com/EtherCAT_Group)

[www.linkedin.com/company/ethercat-technology-group](http://www.linkedin.com/company/ethercat-technology-group)

[www.youtube.com/user/EtherCATGroup](http://www.youtube.com/user/EtherCATGroup)



## RECOMMENDED LINKS

**Upcoming Events:** [www.ethercat.org/events](http://www.ethercat.org/events)

**EtherCAT Product Guide:** [www.ethercat.org/products](http://www.ethercat.org/products)

**Download Section:** [www.ethercat.org/download](http://www.ethercat.org/download)

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