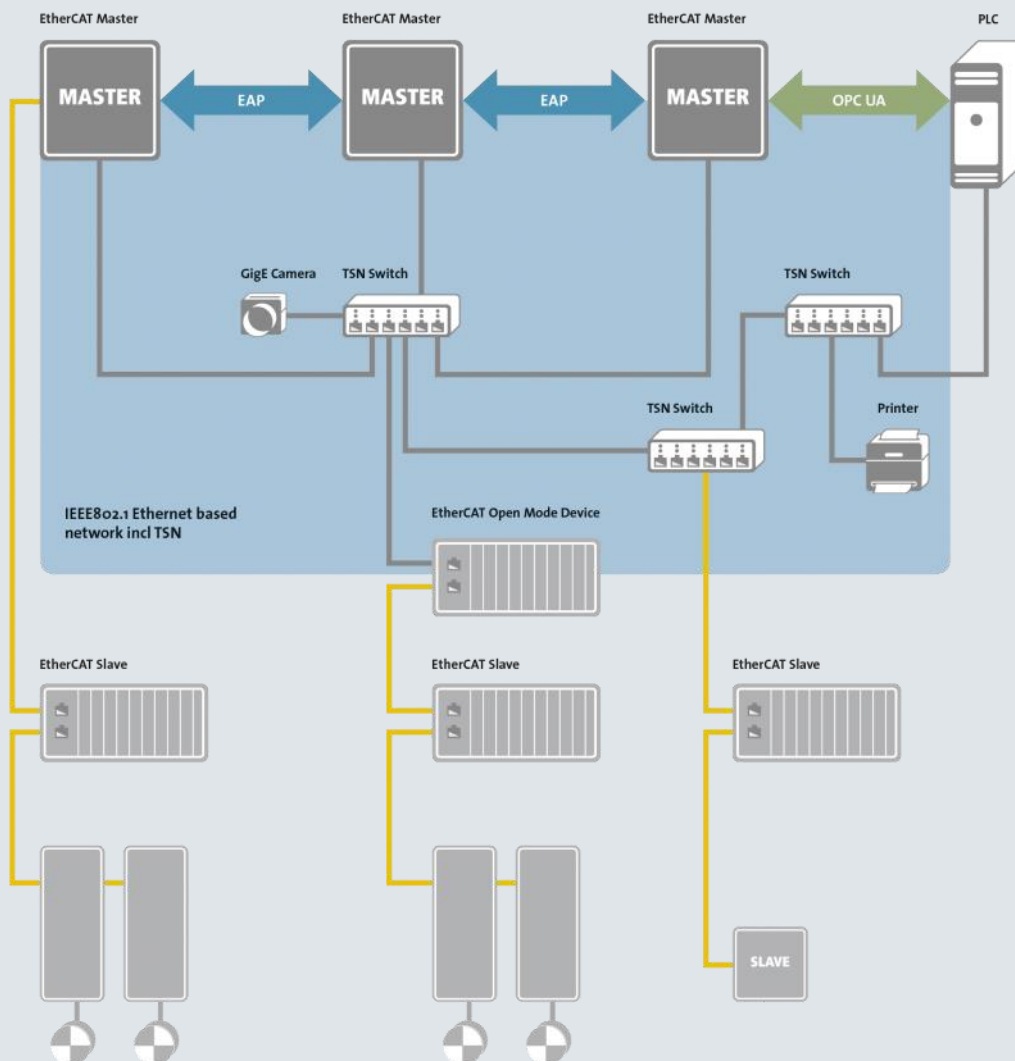


EtherCAT and TSN Connectivity



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- 3 ETHERCAT & TSN
- 5 JOINT BOOTH REVIEW
- 7 TECH & CONFORMANCE
- 8 NEW MEMBERS
- 9 UPCOMING EVENTS

Further Information

www.ethercat.org

EDITORIAL

Dear Members,



TSN has emerged as the hot topic in industrial communication. TSN are upcoming Time Sensitive Networking technologies that will enhance Ethernet and other systems. While many TSN related announcements seem to lack profound understanding of TSN, ETG staff member Dr. Karl Weber has contributed to the TSN specifications as an active member of the IEEE 802.1 TSN Task Group since day one. Even though many TSN projects are not finalized yet, ETG proactively published a profile specification defining how EtherCAT segments will be connected to TSN enabled heterogeneous networks, thus further enhancing the topology options for EtherCAT. The profile approach allows for future changes in the TSN technologies, and ETG is coordinating the specifications through a liaison with the IEEE 802.1 Working Group. The good news: No change to the EtherCAT technology itself is required, EtherCAT slave devices remain untouched! EtherCAT will make use of TSN where it was intended for. Best of both worlds: future proofing EtherCAT while maintaining the stability of our technology!

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

Martin Rostan, Executive Director

MEMBERSHIP

Member company #500 in Japan honored: SURUGA SEIKI Co., Ltd.

In the frame of the ETG Member Meeting the EtherCAT Technology Group (ETG) honored member no. 500 in Japan.

During the meeting at the beginning of July the organization honored the company SURUGA SEIKI CO., LTD., a leading provider of optical test and measurement systems. With SURUGA SEIKI joining the association the ETG reached two membership milestones in rapid succession: not long ago, the ETG welcomed member 2000 in Europe.

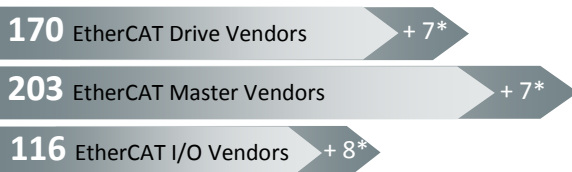
SURUGA SEIKI is a leading brand of precision positioning and optical measurement technology. They develop and manufacture a wide range of products ranging from precision positioning stage and optical measurement technology to a combined system for optical equipment market, rapidly developing mobile equipment and automotive sensor field.

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



EtherCAT Adoption Rate: Vendors

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



*Indicated changes are compared to the last newsletter.

Playing with figures (Vol. 4)

We have more than **4600** members from **65** countries and **6** continents. EtherCAT is implemented on **35** different RTOS and over **900** products are entered in the official EtherCAT Product Guide. There are **30** different Safety over EtherCAT vendors and **52** sensor/actor manufacturers. Furthermore EtherCAT offers connectivity to **32** other communication systems. In 2017, ETG booths were shown at **12** tradeshows and EtherCAT roadshows took place in **22** different countries and **39** cities. Over **500** new members have joined the ETG in **2017**.

Membership Development

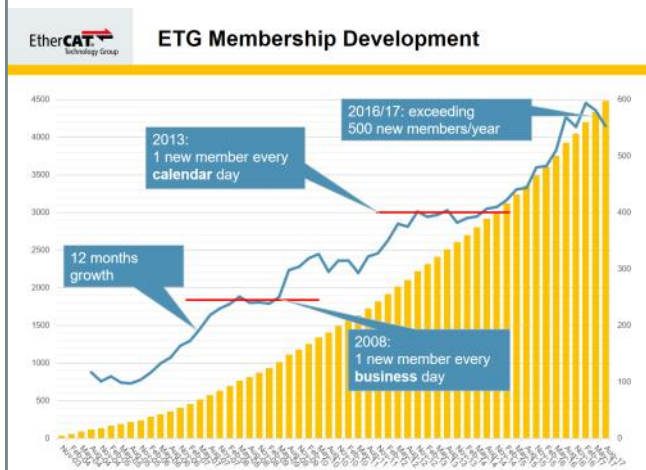
During the last year the ETG has constantly grown and, as of January 2018, counts 4,620 members from 65 countries and 6 continents; ETG continues to be the world's largest fieldbus organization, and a truly global organization as well.

Throughout its history ETG has shown consistent growth: in 2008, there was 1 new member every business day, in 2013 there was 1 new member every calendar day and in 2016 ETG exceeded the number of 500 new members per year.

Besides its strong growth in Europe, there is further increase in new membership applications from Asia (+265) and America (+64).

Find all actual members listed here:

www.ethercat.org/members



ETG celebrates 10 years in the US, China and South Korea

Three out of the five ETG offices recently celebrated their 10th anniversary. In 2007 the ETG, with global headquarters in Nuremberg, Germany, had just reached the milestone of 500 member companies and decided to expand the organization's international presence. The ETG office in Yokohama, Japan had already been founded in 2006. The next step was to open up offices in the US, China and South Korea in order to best support the local ETG member companies.

The international ETG offices have responsibilities that range from technical support to marketing. Events such as educational industrial Ethernet seminars and Plug Fests are coordinated locally and developed according to each region's needs. Participation in trade shows is also organized by the respective office. Furthermore, these offices support the local ETG member companies with the application and implementation of EtherCAT technology.

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



ETG celebrates record year of events

The ETG has seen a record year in 2017 – not only regarding the amount of seminars held, but also the number of countries in which they took place.

In 2012, ten countries were covered and the tally for this year has grown to 22 nations. With almost two seminars per country, the total number of events has reached 39, which is also a new record.

Nine of this year's 22 host countries saw their first ever EtherCAT industrial Ethernet seminar, namely Russia, Mexico, Ecuador, Peru, Colombia, Czech Republic, Slovakia, Slovenia and Croatia.

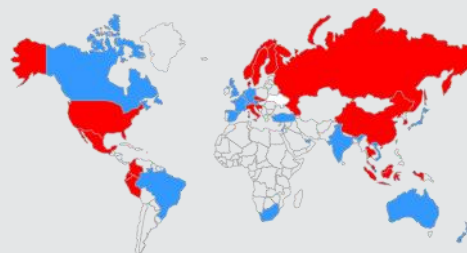
The seminar series, which address the challenges and opportunities of industrial Ethernet, is primarily directed towards users. The educational presentations deal with the basics of EtherCAT technology and the resulting benefits for machine builders, system integrators and end users. Further topics include instructions for the correct installation of EtherCAT networks and diagnostic options, migration of traditional fieldbus systems to EtherCAT as well as the implementation of the technology for Industrie 4.0 and digital

transformation concepts. The participants' feedback was overwhelmingly positive. We are thankful to our local sponsors for their support on-site.

The industrial Ethernet seminars from the ETG will continue around the world in 2018.

For any upcoming events please refer to the event section on the official website: www.ethercat.org/events

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



ETG Supplements EtherCAT with TSN for Use in Heterogeneous Networks

The ETG has supplemented EtherCAT with Time Sensitive Networking (TSN) technologies, expanding the field of possible EtherCAT applications to include heterogeneous network environments. With the help of TSN, industrial controls can contact a number of different EtherCAT segments in realtime through Ethernet networks. In doing so, no changes to the EtherCAT slave devices are required: the EtherCAT Device Protocol, including all high performance characteristics, is fully preserved. Also expanded by TSN is the EtherCAT Automation Protocol (EAP) for communication between controls, which will result in even more deterministic performance on this level.

The ETG has specified the technology expansion in the form of a profile, which highlights the fact that no changes to the TSN standards are needed. This approach also considerably simplifies the adaptation to the final versions of the TSN technologies, because specification in the IEEE is not yet fully complete. The ETG has supported the development of TSN from the very beginning through active participation in the IEEE committee, and is coordinating the specifications through a liaison with the IEEE 802.1 Working Group. This ensures that ETG will also be able to access the IEEE 802.1 specifications that have not yet been adopted. Therefore, the technology can be introduced almost at the same time as TSN.

EtherCAT uses the TSN streams with any data rates for real-time communication above EtherCAT device segments. In the segment itself nothing is changed: the unique performance of the EtherCAT protocol is fully preserved and the thousands of different EtherCAT devices available worldwide do not need to be modified at all. The stream adaptation feature that connects the EtherCAT segment to the heterogeneous TSN network can be placed either in the last TSN switch or in the first EtherCAT slave device.

EtherCAT together with TSN offers the 'best of both worlds'. Therefore, this prepares EtherCAT perfectly for the future.

A Whitepaper on the subject, written by Dr. Karl Weber, has been published in November 2017.

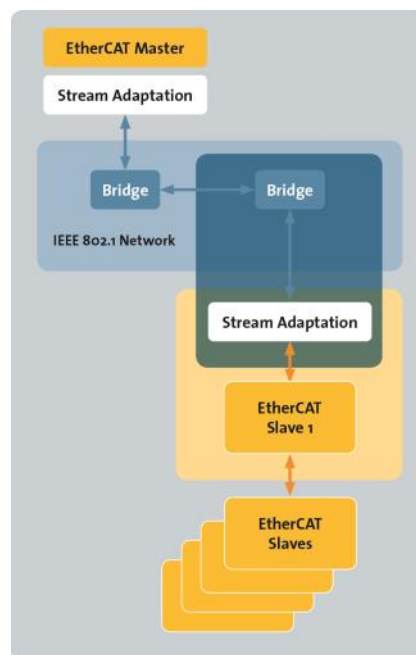
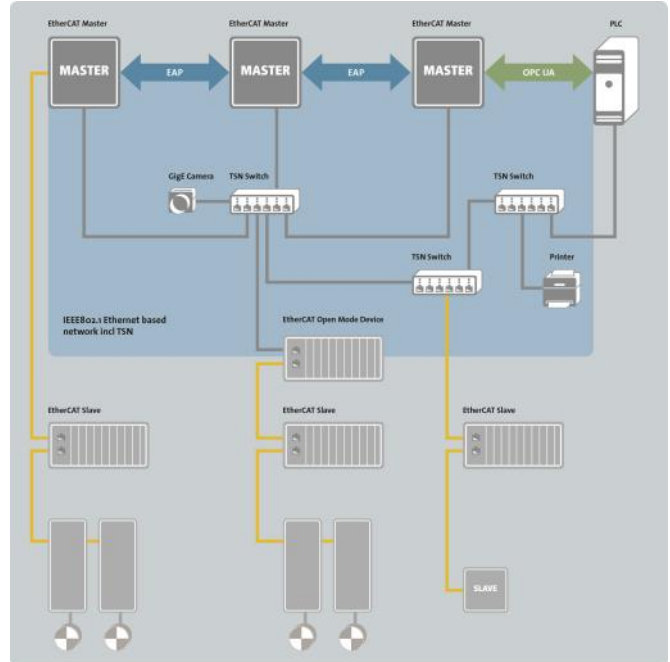
Press Release ([EN](#) | [DE](#) | [CN](#))

Further Information on EtherCAT and TSN can be found here:

EtherCAT and TSN - Best Practices for Industrial Ethernet System Architectures: Whitepaper ([EN](#))

EtherCAT and TSN: Presentation ([EN](#))

EtherCAT TSN Communication Profile ([EN](#))



“The real advantage of TSN is the enhancement of the local network”

What is TSN?

Karl Weber: “Time Sensitive Networking is a set of standards that should enhance the capability of networks to expedite specific services. TSN handles streams – a talker can send a specific amount of data within a time interval to one or more listeners. This provides a set of privileged channels in a network. Ideally the channels transfer the information without delay caused by interference of other traffic.

A set of TSN standards is specified in IEEE 802.1 and will be enhanced over the coming years. As TSN provides quite a few options, profiles can help to ensure interoperability in specific segments. Profile definitions are done by several organizations. IEC in cooperation with IEEE 802.1 started a profile for industrial application core functions, and ETG for the EtherCAT specific adaptation.”

What are the advantages of supplementing EtherCAT with TSN and who can benefit from it?

“EtherCAT operates at field level and at the level of coordinating machines. In some applications heterogeneous structures may be required such as audio/video and extensive IT communication in combination with EtherCAT. This use case was defined at the beginning of EtherCAT but the moderate level of real time capabilities of the legacy infrastructure does not support this kind of operation. TSN is dedicated for such kind of applications and a very small adaption layer without EtherCAT specific elements enables the combination of both technologies.

Another straightforward use case is the use of a single TSN interface for multiple channels connecting EtherCAT segments. This improves scalability of EtherCAT configurations with a master with limited Ethernet interfaces. And TSN allows to run multiple machine elements in a synchronous way – which improves the quality of the interactions significantly.

It offers quite a few options for complex machinery design with just a few TSN needed for this kind of applications.”

Could TSN ever replace a conventional fieldbus system?

“TSN is embedded in the IEEE 802 technology and it could help to coordinate the communication. This eliminates some unwanted interference but does not change the basic rules.

The two main performance drawbacks are unchanged which is the efficiency of Ethernet frames for a small amount of data and the complex and time consuming forwarding procedure. Thus, the typical performance ratio of segment of typical IO elements between EtherCAT and TSN is in the range of 10. And TSN is just a basic communication standard and does not provide an application layer.

Thus, TSN is good in generalized communication applications but not a specialized fieldbus technology. An efficient fieldbus combined with TSN is the best choice of both worlds.”

How would you assess the future development of TSN?

“TSN is not completely specified as of now. The real advantage of TSN is the enhancement of the local network which includes quite a few machines. The future development must reduce the complexity of the current elements at machine to machine networking. This would require a common protocol infrastructure and network control system. Both needs elements that can be handled in a very efficient way at machine level.

TSN is just the first step of the enhancement of machine to machine networking and the TSN configuration and control elements will be involved in the future iteration steps. Our goal is to provide a stable version at machine level as soon as possible.

How to organize communication in future automation systems will be more important than features of communication. This is why EtherCAT keeps the existing elements and offers isolated adaptation to TSN features. Thus, we can support enhancements but protect the investment in EtherCAT.”



Dr. Karl Weber is an EtherCAT specialist working at the ETG Headquarters and also member of several working groups within the IEEE.

ETG Joint Booth @ SPS IPC Drives '17

Together with 63 co-exhibitors and a total of more than 500 different EtherCAT products, including EtherCAT and TSN, we're once again sending out a clear message at our ETG Joint Booth at SPS IPC Drives: We are the Industrial Ethernet organization exhibiting the widest variety of devices worldwide.

Looking back, it was a successful tradeshow with an impressive variety of EtherCAT products (incl. Drives, I/O & Gateways, Sensors & Actuators, Master Systems, Development Products & Services) directly on booth. Demos helped to illustrate Motion, FSoE, EtherCAT P and TSN.

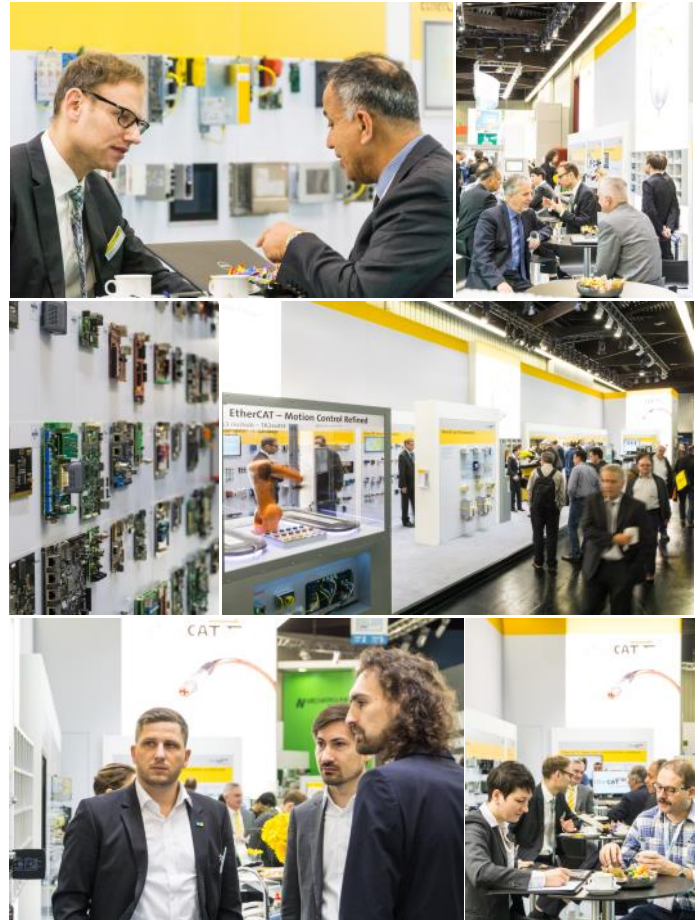
The highlight was definitely EtherCAT and TSN, drawing many visitors to the display wall. The requests to receive the TSN Whitepaper by ETG have also been numerous. By supplementing EtherCAT with TSN, the field of possible EtherCAT applications gets expanded to include heterogeneous network environments, without requiring any alterations in the EtherCAT slave devices. ([Whitepaper](#))

We've again made more contacts than last time, which indicates that visitors are looking specifically for EtherCAT and that the interest in EtherCAT products continues to increase. Thus we want to thank all co-exhibitors cordially for their participation and personal work at our ETG Joint Booth!

With this in mind we would like to encourage all ETG members to continue their support for our marketing activities in 2018.

For all those who couldn't make it to our booth at the SPS trade show, all products and demos will be shown again at Hannover Messe 2018, April 23-27, at booth 9-D18.

ETG Joint Booth 17/18 co-exhibitors & supporting ETG members:



ETG @ SCF Show in Japan

The System Control Fair 2017 in Tokyo, Japan, was a great success.

Compared to the last time, almost twice as many visitors visited the joint booth. During the exhibition, a seminar was held by ETG, which was also very well-attended.

34 co-exhibitors also were all-time-high. ETG would like to thank them for their dedicated support. The overall turnout shows, how EtherCAT technology is met with continuously strong interest in Japan.



EtherCAT P Specification Release

ETG has released EtherCAT P specification and implementation documents. The specification provides device manufacturers with an official, reliable foundation to implement EtherCAT P technology, which enables data and power transmission on a single, standard cable.

The following parts are available as Released Version, now:

- ETG.1030 EtherCAT P Specification
- ETG.1030.1 EtherCAT P Connector Specification
- ETG.1000.2P EtherCAT Specification - Part 2P
- ETG.9001 EtherCAT Marking Rules

EtherCAT P is an amendment of the physical layer of EtherCAT. It allows to provide 2 x 24V and EtherCAT communication on the same 4-wire cable.

Link: www.ethercat.org/EtherCATP

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

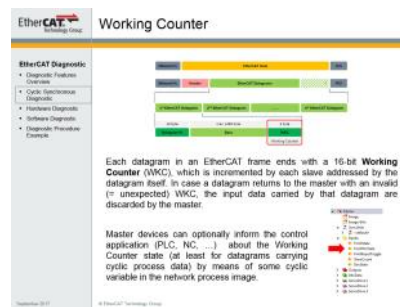


Now available: EtherCAT Diagnosis for Users

The slide set is now available on our official website in English, German, Chinese, Spanish and Italian.

This slide set intends to provide an overview over the diagnostic capabilities provided by EtherCAT. It contains a description of the basic diagnosis functionalities and the most typical error scenarios within an EtherCAT network. It is primarily intended for end users and plant operators, as well as for machine builders and system integrators.

Link: [EtherCAT Diagnosis for Users](#)



Extension of Safety over EtherCAT Conformance Test Tool

The FSoE Conformance Test Update for Safety over EtherCAT Slave devices has been approved by TÜV.

ETG would like to inform all members that the TÜV has approved an update of the ETG.7100 FSoE Conformance Test cases for FSoE Slave devices.

The ETG.7100 series consists of following parts:

- Part 1: General Requirements
- Part 1a: FSoE Conformance Test Tool Change Request Template
- Part 2: FSoE Conformance Test Record
- Part 3: FSoE Test cases specification

Comprehensive test list for FSoE Master and FSoE Slaves (not available for download; is part of FSoE Conformance Test Tool, please contact conformance@ethercat.org)

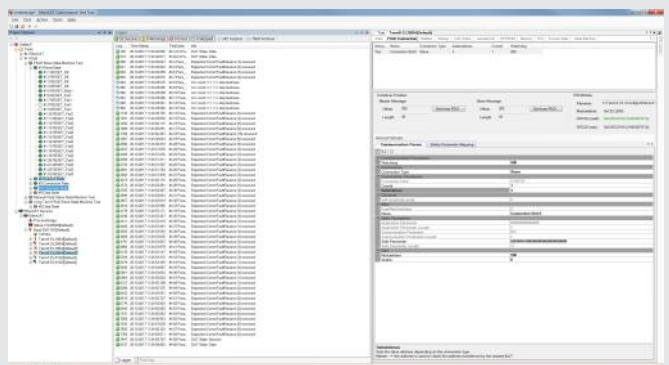
On the official website you can find the updated package, that will be delivered to the FSoE CTT license holders - including the updated FSoE Conformance Test File Set V1.2 and the updated FSoE Conformance Test Record ETG.7100.2 V1.2.4.

The updated tests have become mandatory at the official FSoE Test Centers since Nov 10, 2017.

Safety over EtherCAT (FSoE) is the safety layer used for EtherCAT network devices. It is defined in IEC 61784-3 CPF12 and in ETG.5100.

Safety over EtherCAT Slave devices have to be tested in an official EtherCAT Test Center. The Conformance Test Tool helps prepare for the actual test. You can download the latest version via the following product page: www.ethercat.org/ctt

Safety over EtherCAT Conformance Test Specification: www.ethercat.org/ETG7100



New Members (since last newsletter) in order of membership application

We welcome all new members and thank you for joining forces to promote and advance the EtherCAT technology.

- Bell-Everman
- Anthony Best Dynamics
- meastream
- Beijing Digi-era Technology
- TSC (Technical Solutions Company)
- Peter Robot
- ElastiSense
- Advanio Technology
- ETH Zürich, Department of Mechanical and Process Engineering (D-MAVT), Institute of Robotics and Intelligent Systems (IRIS), Robotic Systems Lab (RSL)
- TOYO SYSTEM
- LINEEYE
- Matuschek Meßtechnik
- Utthunga Technologies
- Van Mierlo Ingenieursbureau
- ASA-RT
- Jiangsu Ysphotech Technology
- KE Elektronik
- SCHUNK
- Elma Schmidbauer
- Neilsen-Kuljian (NK Technologies)
- Beijing HyperStrong Technology
- Erle Robotics
- CODESYS
- University of Cape Town, Department of Electrical Engineering
- SURUGA Production Platform
- SURUGA SEIKI
- ShenZhen Lavichip Technology
- Atrem
- Maple Electronics
- Dongguan Avatar System Automation Equipment
- SHENZHEN MINGSU AUTOMATION EQUIPMENT
- Zhejiang Geely Automobile Research Institute
- INNOTECH
- Mitsubishi Heavy Industries
- CRRC ZHUZHOU INSTITUTE
- Shenzhen Hymson Laser Technologies
- IBASE Technology
- GEFAZ
- ShenZhen Double CNC Tech
- FMS Force Measuring Systems
- 3C MACHINERY (R3T)
- Microcyber
- GAMACO
- Analog Devices
- HIT SPECIAL ROBOT
- Sino Motion Control
- AIM Electronics
- BETA Dyn
- KROHNE Messtechnik
- Jiangsu Cowain Automation Technology
- Autec
- Weld Tooling (BUG-O Systems)
- TELSONIC
- B&P Automation Dynamics
- éolane CAEN
- Auris Surgical Robotics
- Shenzhen Zowee Technology
- Waco Giken
- Visitech
- Shanghai Gcevolution Information Tech.
- CureTec Energietechnik
- Suzhou AGIOE Equipment
- F&S PROZESSAUTOMATION
- Socionext
- Temporal Power
- Genesem
- STIWA Automation
- Fives OTO
- Mayer
- Power Solution Network
- GreenTeam Uni Stuttgart
- P&A Technologies
- HSR Hochschule für Technik Rapperswil, Elektrotechnik
- Hankook Mirae Technology
- GE Energy Power Conversion USA
- 4automation
- JUKI
- JUKI AUTOMATION SYSTEMS
- Epson Europe Electronics
- Accelyst Technologies
- Murata Manufacturing
- Cosmo Instruments
- Signallink
- SOF-TEK Integrators
- DAI-ICHI DENTSU
- Gyeongbuk Research Institute of Vehicle Embedded Technology
- Crossworks
- MechAdept
- SHENZHEN LEADSHINE CONTROL TECHNOLOGY
- Suzhou Delphi Laser
- Mechatech
- SERWIS CNC Mariusz Mareczko
- Shandong RIINS Instruments
- PRETTL Electronics India
- Shenzhen YAKO Automation Technology
- Arcus Technology
- Galli Brasil Comercio de Aparelhos Electronicos
- JD
- GIESS
- Orbotech LT Solar (OLT Solar)
- Huawei Technologies
- PUES
- Wuxi Lead Intelligent Equipment
- Technische Universität Ilmenau, Fakultät für Maschinenbau, Fachgebiet Mechatronik
- Guangzhou Start To Sail Industrial Robot
- Mike & Weingartner
- Duale Hochschule Baden-Württemberg Stuttgart (DHBW Stuttgart), Fakultät Technik, Fachbereich Elektrotechnik
- INESC TEC - Instituto de Engenharia de Sistemas e Computadores
- Shenzhen Hopewind Electric
- Allex Engineering
- WIRED JAPAN
- SHINKO TECHNOS
- eMotion
- Jiangsu Zhongtian Technology
- Krovel
- amcross
- Shanghai Maritime University, Logistics Engineering College
- Vikings Software
- Shin Nippon Tokki
- Autec Deutschland
- Hudson Scenic Studio
- Solartron Metrology
- Guangzhou Shiyuan Electronics (CVTE)
- AddUp
- ETC-PZL Aerospace Industries
- NKSystem
- ima-tec
- Imperial College London, Faculty of Medicine, Department of Surgery and Cancer
- TechnoScope
- KYOCERA
- BL AUTOTEC
- Beijing Corona Science & Technology
- Changzhou GS Technology
- Fives OTO
- REXA
- SEFRAM INSTRUMENTS
- WEBER Schraubautomaten
- Cora Electroautomazioni
- A-Traction
- FLC Zbigniew Huber
- Zhejiang Hechuan Technology
- DJM
- Kowamex
- Mosconi Daniel - Studio di Ingegneria
- GAMADE di Westfal Michèle & C.
- Shiratech Embedded
- INA ORIENTAL MOTOR
- Spintrol
- Cosmo Sciences
- jagdt engineering
- SISE
- Lithoz
- HONDA TSUSHIN KOGYO
- watttron
- AutomatMat
- Eastern Logic
- Quantus Mechatronics
- Mitrol
- 4NXT
- LEF Systems
- MYIR Tech
- Shenzhen Best Motion Technology
- Largan Precision
- Devol Advanced Automation
- YUKI LABORATORY
- J. Zimmer Austria
- GYS
- Jarvis Products
- Li Lon Shiang Industrial
- TOWA
- Ghost Robotics
- Université Laval, Faculty of Science and Engineering, Department of Mechanical Engineering
- William Petersen Elektronik
- Thomas More Mechelen-Antwerpen, Campus De Nayer, Department Technology & IT, EmSys Research Group
- AMS - Gesellschaft für Automatisierungs- und Meß-Systemtechnik
- Fraunhofer-Institut für Entwurfstechnik Mechatronik IEM
- NEXTY Electronics
- S+S Regeltechnik
- Strauss Verpackungsmaschinen
- Bizerba
- YunKe Intelligent Servo Control Technology
- Alphasronics
- Shenzhen OUR New Medical Technologies Development
- Shenyang Contor Mechanical & Electrical Equipment
- W. Althaus
- ESCAD Automation
- LaonS
- MBtech Group
- NARI Technology
- Keisokugiken
- OPTO4L
- Co.fin Elettronica
- Agiliad Technologies
- DRUM Engineering
- POLITÉCNICO DO PORTO, ISEP - Instituto Superior de Engenharia do Porto
- PI Electronics (H.K.)
- CESA (Actemium)
- Kulicke & Soffa Industries
- SAWAMURA DENKI IND.
- Tecnoap
- e.sigma Technology
- Chengdu Yanxing Automation Engineering
- Hosta Motion Control
- Shenzhen SuperFar Intelligent Control Technology
- OMRON Electronics
- Medic (Medic.Life)
- ZIS Industrietechnik
- Sanbi
- QuEST Global Services
- Netajo
- NEXEYA FRANCE
- Imminent Integrators
- National Technical University of Athens (NTUA), Department of Mechanical Engineering, Control Systems Laboratory (CSL)
- SANWA SUPPLY
- T.E.M.A.
- PowerSoft
- Neumann&Müller
- Geratech
- Mianyang City Junlian Technology
- Ingenieurbüro Für IC-Technologie
- kanDO Innovation
- L&T Rubber Processing Machinery
- Alexander Binzel Schweisstechnik
- LOVATO Electric
- Cegelec Infra Technics
- Caron Engineering
- Ektam Makine
- Flex
- PCB Synotech
- Thai Dynamics Master
- NUTPOR BREADS, UNIPESSOAL
- IAR Systems
- Global Linx Technology
- Traffic Control Technology
- amBX UK
- Syleps
- Aviation Power Control
- WONTECH
- ANYbotics
- TAKASAGO
- CHANG SHUAN ELECTRONICS (ADTEK)
- HAKKO
- Epec
- J.E.T.
- Institut Clément Ader (ICA)
- Productive Robotics
- LITHO TECH JAPAN
- HOKS
- Hope Win Industrial
- ARTEH
- Willig Embedded Software
- AIXEMTEC
- Adullam Tech
- silex technology
- EITECH
- EleSy
- Nes Yazilim
- INNCONTACT
- Lorenz
- Mamezou
- Unison
- MIDORI PRECISIONS
- Preferred Networks
- NPC Lasers&apparatus TM
- WEG South East Asia
- MAC Valves
- TOA SYSTEM
- Stjernberg Automation
- Innodelec
- NEC Laboratories America
- Minute
- AEA (Loccioni)
- F&S Elektronik Systeme
- IEF-Werner
- Chinese Academy of Sciences, Institute of Modern Physics
- PL Pro Layout
- Nicolaus Copernicus University in Toruń (NCU), Faculty of Physics, Astronomy and Informatics
- EOPTIS
- Rheinmetall Electronics
- ShenZhen Sunanton Technology
- Anasem Holdings
- Escribano Mechanical and Engineering
- Robowell Korea
- SICK
- NEXCOM JAPAN
- "Guangdong University of Technology, School of Automation"
- TOKYO MICRO
- KYOEI ELECTRIC
- Global Electronics
- TECOS, Slovenian Tool and Die Development Centre
- Harris
- Pusan National University, Department of Electronics Engineering, Intelligent Robot Lab (IRL)
- Shenzhen WELLAUTO Technology
- MUSE Robotics
- WIN-HALL TECH
- KUMOH MACH. & ELEC. (KOMEKO)
- SBS Science & Technology
- Caron Engineering
- Bangkok University, School of Engineering, Robotics Laboratory
- STEPHANIX
- SORTING Solutions
- Tethers Unlimited
- Schwarzmüller Consulting & Engineering
- Modbot
- FMI Industrial Automation
- Houston Mechatronics
- Rhizomatiks
- Hunan Sharing Intelligent Machines
- ASAP Electronics
- MicroTechnica
- Changzhou Hence Information Technology
- Plasma Technologies
- "NIS"
- Nanjing Institute of Advanced Laser Technology (NIALT), Laser Detection and Sensing Instrument R&D Center
- Creative Connors
- AISIN AW
- HYUNDAI WIA
- Ningbo Xingtai Technology
- WITTENSTEIN cyber motor
- Georgia Institute of Technology (Georgia Tech), College of Engineering, The Daniel Guggenheim School of Aerospace Engineering, High-Power Electric Propulsion Laboratory (HPEPL)
- tecVenture
- KOORD
- Motion Tech Automation (Lion Precision)
- Zhejiang Wolong Servo Technology
- Ruberg-Mischtechnik
- Vik Ørsta
- ASKOM
- Brilliant Technologies
- NST
- KONE
- Metatechno
- Linz Center of Mechatronics
- ABB Switzerland Semiconductors
- Goertek
- Tianjin TSNC Science and Technology
- IEF-Werner
- Wintop(Dongguan) Industrial Technology
- NII (Cangzhou) CNC Technology
- DILAS Diodenlaser
- Heliokon
- TPM Engineering
- Pusan National University, Department of Electronics

New Members (since last newsletter) in order of membership application

We welcome all new members and thank you for joining forces to promote and advance the EtherCAT technology.

- Engineering, Embedded Control System Lab.
- Shenzhen RuiDa Technology
- Metroval Controle de Fluidos
- Glowbuzzer
- Racelogic
- Open Source Robotics
- Adhoc Japan
- Nippon Techno Lab.
- FTCAP
- Changzhou Tengen Industrial Development
- Florida MicroElectronics
- Beijing Nego Automation Technology
- CYBERBIT
- National Institute of Advanced Industrial Science and Technology AIST, Department of Electronics and Manufacturing, Electronics and Photonics Research Institute (ESPRIT)
- TCS INDUSTRIAL
- Standard Units Supply (India)
- Beijing itegva technology
- ENGIE Electropject
- Nanjing University of Aeronautics and Astronautics (NUAA), College of Mechanical and Electrical Engineering
- Moog Unna
- University of Patras, Department Mechanical Engineering & Aeronautics, Robotics Group
- HENSOLDT Optronics
- Harmonic Bionics
- SINOMACH Intelligence Technology Research Institute
- Weber Electronic & Race Engineering
- SONITUS
- Absolute Motion Control
- Suzhou Xiling Control Technology
- kws Computersysteme
- SHARP
- Universidat San Francisco de Quito, College of Sciences and Engineering, Electrical Engineering Department
- Unmanned Solution
- Xuchang Zhongyi Electrical Technology
- TDG (Tokyo Denki Gijyutsu)
- Zitte
- LIAM Consorzio (LIAMLAB)
- FUJII ELECTRIC CABLE
- GRITEC
- Picofluidics
- Baldazzi Mauro Impianti
- Braunkabel
- EUROS Embedded Systems
- MSV elektronika
- Jiangsu Donghua Testing Technology
- Guangzhou Honest Automation
- Physimetron Elektronische Messtechnik
- TRUMPF Lasersystems for Semiconductor Manufacturing
- Planar Motor
- KERAjet
- inotech Meter Calibration Systems
- Memjet Technology
- Astronics Test Systems
- China North Vehicle Research Institute
- isel facility
- Science in Motion Technology
- COWIN.FA
- DHM Prüfsysteme
- Orion Technology
- Ingenieurbüro Kraft
- Guangxi University, College of Mechanical Engineering
- DARPAmotion
- M8M
- Peter Mess- und Automatisierungstechnik
- Cyient
- Sumitomo Electric Industries
- Advanced Micro Controls
- MegaBots
- Technische Universität München, Department of Physics Institute for Hadronic Structure and Fundamental Symmetries (E18)
- Digital Alloys
- «Scientific and Technical Center of Unified Power System» (STC UPS)
- FUJITSU GENERAL ELECTRONICS
- Performance Controls
- Universität Bremen, Fachbereich 3 - Informatik, Arbeitsgruppe Rechnerarchitektur
- Global Standard Technology
- Wuxi Chihai Intelligent Technology
- MonoDAQ
- Alltec (FOBA Laser Marking + Engraving)
- AUXIND
- elegator
- Encoder Products Company
- Guangzhou Hongsen Servo Motor
- ERMAKSAN MAKINA
- PCB Piezotronics
- Kawasaki Heavy Industries, Aerospace Company
- MEIDEN ENGINEERING
- Neways Technologies
- adcos
- Control Systems Technology
- Horiba Instruments
- ACUSYS
- EVERPRECISION TECH
- National Research University "Moscow Power Engineering Institute" (MPEI), Institute of Electrical Engineering, Department of Electric Drives
- U-System
- Shanghai Qiangbang Electronics
- Black Whale Studios
- North Coast Electric Company
- Konica Minolta
- Doosan Robotics
- PROCENTEC
- grapho metronic Mess- und Regeltechnik
- Arch Systems
- Sumitomo (SHI) Cryogenics of America
- Radioavionica
- Eagle Harbor Technologies
- RRRobotica
- Sarissa
- GDS Instruments
- Vorwerk & Partner
- Stahl
- NIPPON SYSTEMWARE
- Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS-CNRS)
- Parker Hannifin, Pneumatic Division
- North America
- Vnednreskaya Firma Elna
- INNFOSS (Beijing) Technology
- eSSys
- Cognizant Technology Solutions India
- Rokae (Beijing) Robotics Technology
- Shanghai Baobin Robot Automation Technology
- Narranz Soluciones
- ECSPRIME
- TOSH
- The Johns Hopkins University Applied Physics Laboratory
- JASA Packaging Systems
- Beijing Does Robotics
- Beijing Zhonghaiguanghui
- Luminize
- Long Sought for Design
- Zhuzhou InnoPower Technology
- Synthego
- KIKUSUI ELECTRONICS
- Festo
- Shenzhen DVS Mechatronics
- Amazipoint Technology
- Festo
- STANLEY Engineered Fastening
- Hauch & Bach
- Nanjing Forestry University, College of Mechanical and Electronic Engineering
- Plasmatic RnD
- Hefei MacroSilicon Technology
- SMARTMOTION
- Sorenson Engineering
- Tokyo Drawing
- ADL Embedded Solutions
- Warsaw University of Technology, Faculty of Electrical Engineering
- Rope Robotics
- Schildknecht
- ColubrisMX
- Teubner Industrie-Elektronik
- Peregrine Technology
- Sunrise Instruments
- National Institute of Advanced Industrial Science and Technology AIST, Intelligent Systems Research Institute
- FOCUS Electronics
- Voyager INC
- Libertron
- Mirae
- Shenzhen ECOL Electric Technology
- Chicago Flyhouse
- GE.MA.TA.
- NEW SOLUTION
- École Polytechnique de Montréal, Electrical Engineering
- Arbite Robotics
- Lodz University of Technology, Faculty of Electrical, Electronic, Computer and Control Engineering, Institute of Automatic Control
- PTM mechatronics
- Festo
- Max-Planck-Institut für extraterrestrische Physik
- NexGen Wafer Systems
- Max-Planck-Institut für Astronomie
- Multiprojekt Automatyka
- Prime Technology
- NTREX
- Nanda Automation Technology
- SCANLAB
- Unitronics
- Ing. Jindřich Franc - ELSACO
- URYU SEISAKU
- CDP Technologies
- Satelcom Telekomünikasyon, Bilgi ve İletişim Teknolojileri İthalat ve İhracat Sanayi (Satelcom)
- Nexans Deutschland
- CANALTEKS
- Jiangsu Joinhope Electric Technology
- Guangzhou Weide Electric Machinery
- The Kobi Company
- PAC TECH
- HANGUKROBOT
- ORLIN Technologies
- Shenzhen Anicetech Automation
- Zhejiang Coto Whole Set Equipment
- Laser Research Institute of Shandong Academy of Sciences
- Schildknecht
- Computersysteme Dr. Schmidt
- TA Instruments - Waters
- IRS Systementwicklung
- PSK
- Embaix Consulting Dipl.-Ing Cord Elias
- Jiangsu Jicui Intelligent Manufacturing Technology Research Institute (Institute of Intelligent Manufacturing Technology, JITRI)
- ABC Enser Otomasyon ve Güvenlik Teknolojileri (ABC Enser Automation and Security Technologies)
- Plasmatreat
- Technology Atlanta
- Shanghai Weihong Electronic Technology
- Tritec Systems
- Panasonic Advanced Technology Development
- ANDRITZ HYDRO
- Logitech
- Compel

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EtherCAT Product Guide featuring 900+ Product Entries

The official EtherCAT Product Guide (online) is still growing: So far more than 900 entries have been entered.

The EtherCAT Product Guide lists EtherCAT products and services as submitted by ETG member companies. Even though the guide already contains over 900 entries, there are still many products which have not been entered yet. And many entries contain several products or variants. Consequentially, the product variety of EtherCAT is striking.

The guide includes slave devices like drives, I/O, sensors and actuators, valves, gateways, interfaces or controllers like IPC, PAC, embedded, motion, test and measurement or safety or development systems, tools, training and implementation

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Product Guide Entry Form PDF ([EN](#) | [DE](#) | [CN](#) | [JP](#))

Upcoming Industrial Ethernet Seminars in Q1/Q2 2018*

For 2018, ETG is again planning a series of Industrial Ethernet Seminars worldwide. The following dates are already set.

India: February 20-24

- | Chennai
- | Coimbatore
- | Bengaluru
- | Pune

Register online for free: www.ethercat.org/2018/india

Spain: March 13-15

- | Madrid
- | Barcelona
- | Bilbao

Netherlands: March 20

- | Eindhoven

SEA: March 21-27

- | Singapore
- | Bangkok
- | Saigon
- | Penang
- | Kuala Lumpur

Turkey: May 9

- | Istanbul

Call for Co-Sponsors may be available for some of the events listed above, and will be distributed to all ETG members worldwide. Please get in contact with us if you are interested to be part of our seminar series.

Planned ETG Tradeshow Participations Worldwide 2018*



SEMICON KOREA

Seoul/ South Korea, 31.01.-02.02.



SIAF – SPS Automation Fair

Guangzhou/ China, 04.03.-06.03.



embedded world

Nuremberg/ Germany, 27.02-01.03.



Automation World

Seoul/ South Korea, 28.03.-30.03.



TECHNO-FRONTIER

Chiba/ Japan, 18.04.-20.04.



HANNOVER MESSE

Hanover/ Germany, 23.04.-27.04.



IAMD – Industrial Automation Motin & Drives Beijing

Beijing/ China, 09.05.-11.05.



SPS Italia

Parma/ Italy, 22.05.-24.05.



SEMICON West

San Francisco/ USA, 11.07.-13.-07.



IAS – Industrial Automation Show

Shanghai/ China, 07.11.-11.11.



SPS IPC Drives

Nuremberg/ Germany, 27.11.-29.11.

Call for Co-Exhibitors may be available for some of the events listed above, and will be distributed to all ETG members worldwide. Please get in contact with us if you are interested to be part of our ETG tradeshows.

For more information refer to the event section on the official website: www.ethercat.org/events

*subject to modifications

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