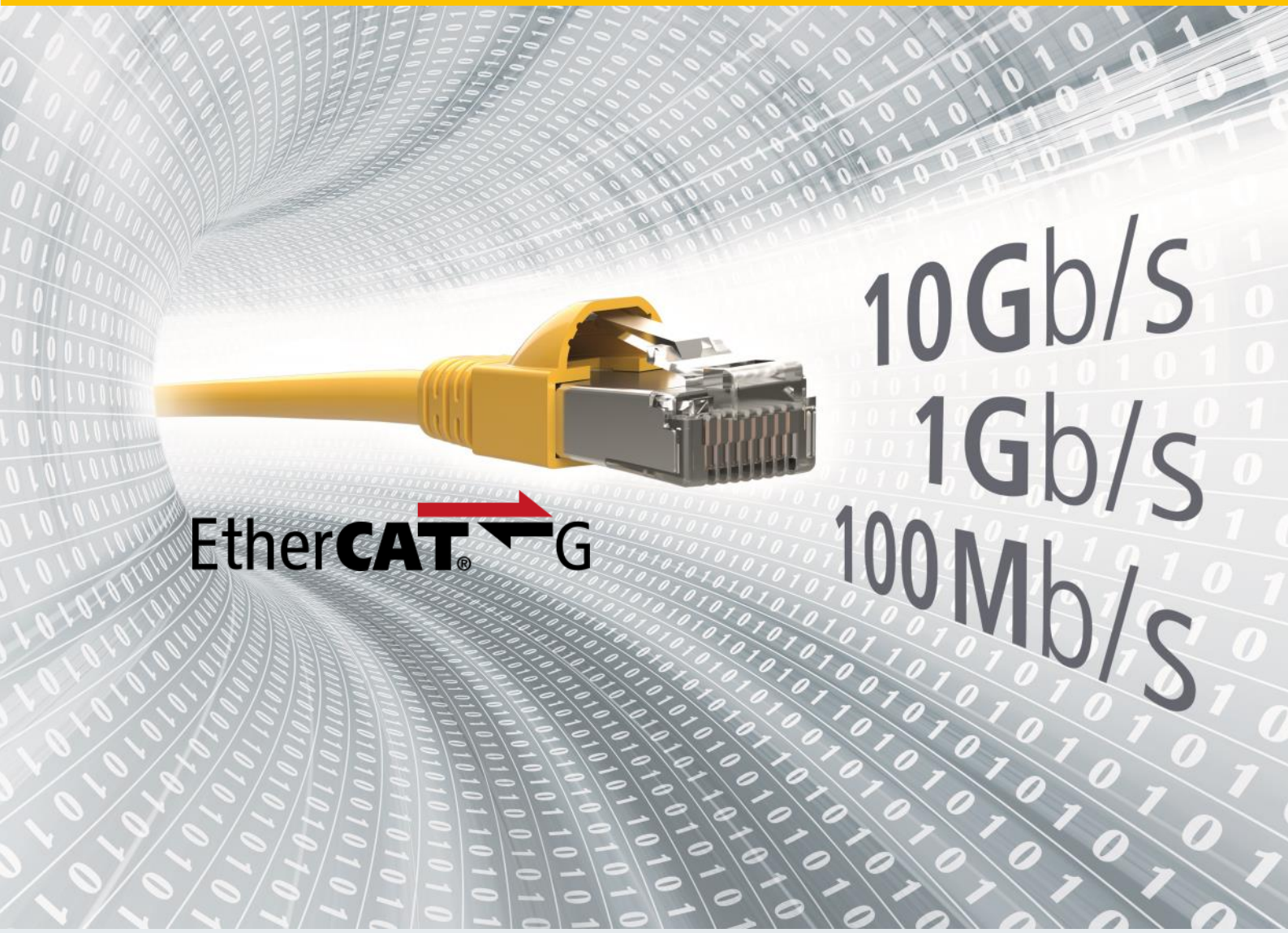
ETG News

June 2020 | #31



EtherCAT® Technology Group

EtherCAT Technology Group
ETG Headquarters: Ostendstr. 196
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For other ETG offices see website

Website: www.ethercat.org
Email: info@ethercat.org

CONTENT

further information

www.ethercat.org

EDITORIAL

Dear Members,

I would like to ask each and every one of you how you are doing: Not in the sense of a greeting, but in the hope that you and your loved ones are in good health and that you will be able to cope with the difficult economic conditions of this global crisis!
COVID-19 is a challenge of unprecedented proportions. But we should not forget that we as members of the EtherCAT community are among the privileged ones. This is not only because of EtherCAT – and certainly because of it – but because almost all of us belong to the automation industry, and this industry will certainly be among the first to be in demand again after the crisis.

In ETG offices, of course, many things are different at the moment: In Germany, the USA and Japan, most of us still work from our home offices. Face-to-face meetings have not been able to take place since March and had to be replaced by online meetings or even cancelled altogether – and this will be the new normal for quite some time. Our EtherCAT technology introduction seminars cannot be held as usual, and I know I am not alone with the feeling that NOT travelling is a huge change. However, many things have remained the same: In fact, the ETG technical support team reports an increase in demand. It appears that many members are using the newly gained time for new EtherCAT developments.

We are also continuing to expand the EtherCAT ecosystem. Especially for developers, the revised protocol overview poster is available for download, the Knowledge Base is constantly being enhanced, and the range of EtherCAT applications is constantly widening with new specifications for special applications, such as for test and measurement.

And many companies continue to join ETG – although not quite as many as in normal times. Speaking of normal times: We all hope they will come back soon and that you will stay healthy!

With best wishes on behalf of the entire EtherCAT Technology Group team,

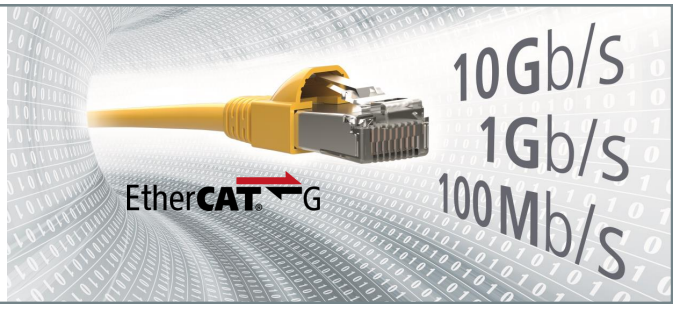
Martin Rostan, Executive Director

TECHNOLOGY

ETG supports EtherCAT G

At its last meeting, the Technical Committee of the EtherCAT Technology Group has accepted EtherCAT G as an addition to the EtherCAT standard. Moving forward, EtherCAT G and G10, which extends EtherCAT technology to 1 and 10 Gb/s, respectively, is now supported and promoted by the ETG.

This is particularly useful, when transmitting large amounts of process data per network participant. Read more on page 2!



EtherCAT adoption rate: vendors

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

179 EtherCAT drive vendors + 4*

221 EtherCAT master vendors + 3*

127 EtherCAT I/O vendors + 9*

*Indicated changes are compared to the last ETG news.

Playing with figures (vol. 7)

We have more than **5800** members from **67** countries and **6** continents. EtherCAT is implemented on **36** different RTOS and over **1100** products have been entered in the official EtherCAT Product Guide. There are **42** different Safety over EtherCAT vendors and **57** sensor/actor manufacturers. Furthermore, EtherCAT offers connectivity to **33** other communication systems. In **2019**, ETG booths were shown at **12** international trade shows and our EtherCAT seminar series took place in **19** different countries and **46** cities. About **500** new members have joined the EtherCAT Technology Group in the last **12** months.

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TECHNOLOGY

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But wait… What is EtherCAT G?

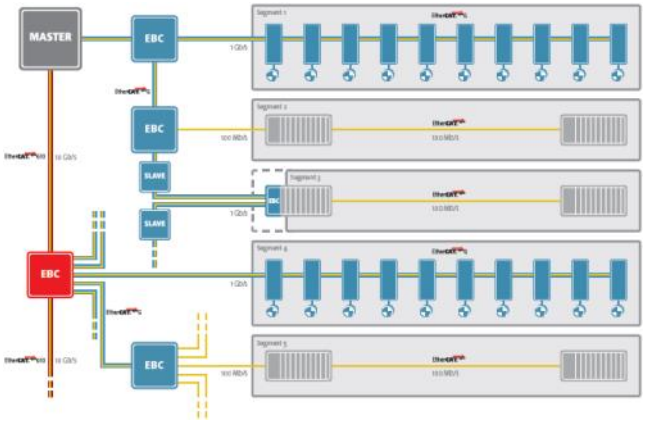
EtherCAT G: communication at gigabit levels

As an extension of the standard EtherCAT protocol, EtherCAT G/G10 enables data communication at rates of 1 Gb/s as well as 10 Gb/s. This is particularly useful, when transmitting large amounts of process data per network participant, such as with machine vision, high-end measurement technology or in complex motion applications.

The EtherCAT protocol itself as well as all of its positive features are fully retained with EtherCAT G/G10. EtherCAT G/G10 is fully compatible with the IEEE 802.3 standard and the topology flexibility stays the same, too: Drop lines, lines, daisy chains or tree structures can all be realized.

The gigabit extension also introduces the branch concept, which is implemented with the so called EtherCAT Branch Controllers (EBC). The EBCs act as nodes for the integration of independent segments with 100 Mb/s devices on the one hand, and on the other hand, they enable parallel processing to the connected EtherCAT segments within an EtherCAT G network. The combination of Gb/s segments with 100 Mb/s segments is easily possible, too.

The forwarding of the data into the single segments is priority- and/or time-controlled, with each branch treated like an independent EtherCAT segment: A frame doesn't run through all segments in series, but the segments are processed in parallel. This reduces propagation times in large networks significantly



and increases the system performance many times over.

In typical EtherCAT-fashion, the configuration of the EtherCAT Branch Controllers is managed via the master, so no additional IT configuration tools are needed. The only thing the master has to offer is an according Gb/s port. Important features such as diagnostics or network synchronization via Distributed Clocks are supported by the EBCs and are forwarded into the connected segments transparently.

EtherCAT G/G10 thus opens up the advantages of significantly increased bandwidth and reduced propagation times without the field devices themselves all having to be equipped with gigabit interfaces: The tried and tested 100 Mb/s devices are retained and, through the EtherCAT Branch Controller concept, still benefit from the technology expansion. This means that EtherCAT is ready for enhanced future requirements.

Press release

EtherCAT G Flyer

PRODUCT PROMOTION

Add your EtherCAT products and services for free!

The official EtherCAT Product Guide reflects the striking variety of EtherCAT products. As of today, over 1100 entries have been submitted by ETG member companies.

The guide includes a variety of EtherCAT devices like drives, I/O systems, sensors, valves, gateways and interfaces, master systems, including PLC, IPC, PAC, embedded, motion and test and measurement systems, as well as functional safety and EtherCAT P products.

One should note, that many entries contain whole product series, and also numerous products have not been entered yet.

The total number of EtherCAT products is therefore considerably higher.

Especially in these days, customers of EtherCAT products (like machine builders and system integrators) are looking for suitable products online — a great chance to increase awareness and visibility.

It's also a great chance to check your existing entries and submit updates, if available.

To promote and increase your EtherCAT product sales, we invite all ETG member companies to add their own EtherCAT products or services for free. Simply fill out the Product Guide Entry Form and send to info@ethercat.org.

Add your product today!

Product Guide Entry Form (EN | DE | CN | JP)

EtherCAT Product Guide: www.ethercat.org/products

CONFORMANCE

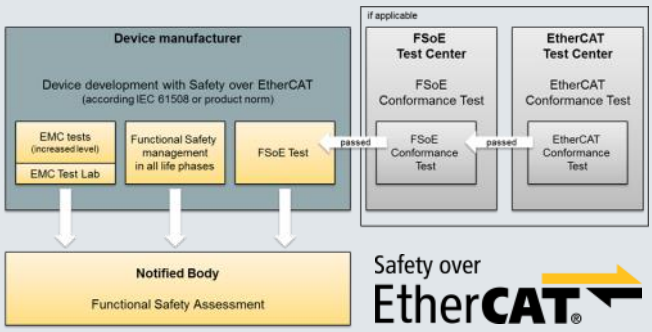
FSoE Conformance Test – mandatory for manufacturers of safety devices

In applications where life and limb are at stake, or where valuable machines and manufactured goods require protection, safety devices ensure the necessary safety measures in the field. In the event of a fault, they trigger mechanisms at lightning speed, which, for example, force an emergency stop of a machine to reliably ensure the safety of the application and above all of the operator.

To formally confirm this high level of safety, the manufacturers of such devices are subject to official requirements during development, testing and implementation. The EtherCAT Technology Group (ETG) therefore offers manufacturers of Safety over EtherCAT (FSoE) devices an ecosystem with a wide range of support services such as tools, tests, documents and consultation. The central component of these support services is the official FSoE Conformance Test, which is mandatory for manufacturers.

The development of functional safety devices is associated with a rigorous formal effort, which on the one hand results in high quality hardware and software, and on the other hand also ensures verifiability. Finally, before the market launch, a recognized test center must prove that the entire implementation meets the requirements of the desired Safety Integrity Level (SIL). In addition to the actual safety-relevant function of the application (e.g. safe emergency stop or safely limited speed for a drive), proof must also be provided for the reliable and standard-compliant implementation of the Safety over EtherCAT protocol. One of the means of choice for this is the so-called FSoE Conformance Test, which is carried out by an officially recognized FSoE test service provider in the EtherCAT Test Center. According to the FSoE Policy, each manufacturer is obliged to perform this test, which in itself already constitutes a subset of the formally required proof overall.

Read full article



Acceptance process for Safety over EtherCAT (FSoE)

WEBSITE

ETG with new multimedia content

We take the crisis as a chance to further our effort in the multimedia area. Thus, we are happy to present you a bunch of new videos on our YouTube channel.

We have the informative series EtherCAT in 2 minutes featuring the various beneficial aspects of EtherCAT technology plus more extended content such as EtherCAT in 20 minutes which gives you a good overview on how EtherCAT works and what it can do to support your application. More to come! We're looking forward to your feedback and further video ideas.

Learn about the ETG, our unique functional principle, the precise synchronization and easy diagnosis of EtherCAT.

ETG YouTube channel

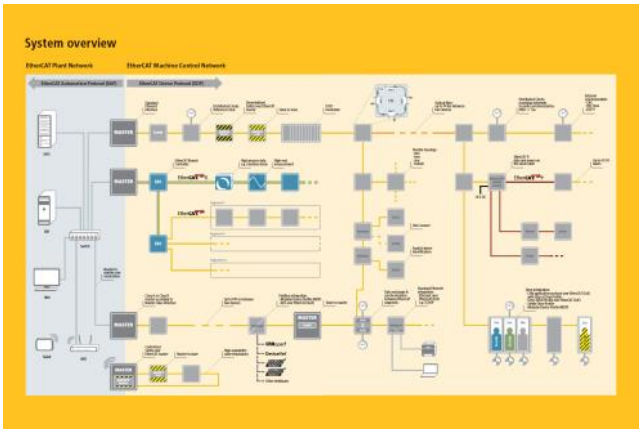
Update EtherCAT brochure

In order to keep you always up to date, we have revised our EtherCAT brochure.

In addition to a complete revision of the entire document, chapters on EtherCAT G and the manufacturer-independent diagnostic interface for EtherCAT masters are now also included. Furthermore, the central graphic for the system overview has been adapted. Currently, the update is available in German and English, further language versions will follow.

Download (EN)

Download (DE)



SPECIFICATION

ETG.5003 Semiconductor Device Profile

Many Specific Device Profiles (SDP) have been updated, most of them on their object dictionary only (xlsx file), not on the rest of the specification (text file).

For each individual SDP there are now two versions, one identifies the text file and the other one identifies the spreadsheet file. Also, the related test files (TF-48xx) have been released in their initial version V1.0.0.

- ETG.5003.**202x** & TF-482x: MFC Object Dictionary Specification and Test Files (Release)
- ETG.5003.**20xx** & TF-48xx: SDP Specification and Test File (Release)
- ETG.5003.**3000** & TF-4900: Chiller Specification and Test File (Release)
- ETG.5003.**2060** & TF-4860: Temperature Controller Specification and Test File (Release)

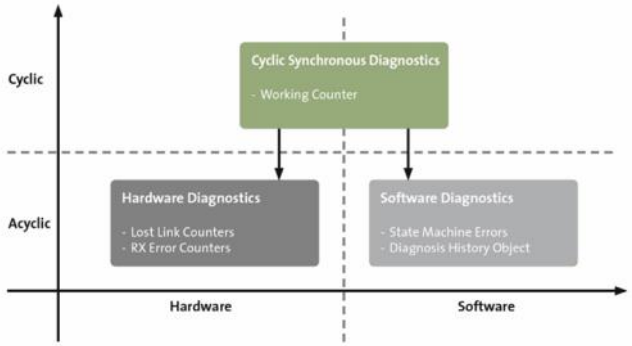
www.ethercat.org/ETG5003

Master-independent diagnostic interface for EtherCAT networks

Diagnostic capabilities are one of the key features in determining the success of a fieldbus technology. To further improve the diagnosis in EtherCAT networks, the EtherCAT Technology Group (ETG) has defined a vendor independent diagnostic interface with the specification ETG.1510 "Profile for Master Diagnosis Interface". This enables EtherCAT masters to provide detailed network diagnostic information and health status to third party tools in a user friendly and standard way.

In modern industry machine and plant availability represent one of the most important factors in order to guarantee efficiency and competitiveness, and EtherCAT enables this by means of a well proven technology relying on a robust communication infrastructure.

Yet, industrial environments can be challenging even for reliable communication technologies like EtherCAT: constantly moving parts or continuous vibrations could cause temporary link losses or even cable breaks in the long term, while EMC disturbances



could falsify signals travelling on the communication path. In all these cases, the diagnostic capabilities of the fieldbus represent the key element in order to detect errors, determine its location and possible causes, and reduce thereby the machine downtime as much as possible.

Read full article

WEBSITE

EtherCAT Knowledge Base

The EtherCAT Knowledge Base combines information about detailed technical descriptions, FAQs, a glossary around the EtherCAT technology, and hands-on how-to descriptions. Due to its continously extention, you can find more than 100 different entries. The descriptions are intended for the use of trained specialists in control and automation engineering who are familiar with the applicable standards.

The latest entries that have been updated, enhanced or added:

- ESM (EtherCAT State Machine)
- CTT (Conformance Test Tool)
- CRC (Cyclic Redundancy Check)
- Device Family
- Master and Configuration Tool Recommendations

Please visit the EtherCAT Knowledge Base via the following shortlink (member login required):

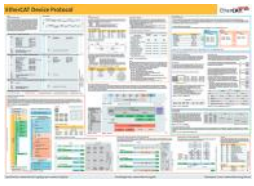
www.ethercat.org/kb

EtherCAT Device Protocol Poster

We offer manufacturers, developers and users comprehensive support services for EtherCAT technology. The EtherCAT Device Protocol Poster is an additional tool that specifically helps developers of EtherCAT devices successfully navigate the EtherCAT world.

The enhanced poster deals with the basics of EtherCAT technology, the EtherCAT Device Protocol (EDP), and provides a visual overview of EtherCAT. It describes the basic functional principles of EtherCAT, the structure of the frame and its processing in the EtherCAT Slave Controller (ESC). Additionally, it provides further information on the registers used by the ESC, the object model and references to relevant specification documents.

www.ethercat.org/poster



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ORGANIZATION

New members (since last news) in order of membership application 1/3

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

- ALMACO
- Hong Kong Productivity Council (HKPC)
- HORIBA Precision Instruments (Beijing)
- Bever Control
- NorComp
- SilCore Technology
- Kunming Unionscience Technology
- Kunshan SVL Electric
- Overlay Technology
- Kinestas
- ZEUS
- Grid Solutions
- TRUMPF Schweiz
- Hangzhou Wolei Intelligent Sci-tech
- SHENZHEN QITAI TECHNOLOGY
- TE.CO. Tecnologia Commercial
- Ocado Technology
- Shanghai Suntone Electronic
- Keysight Technologies Deutschland
- Automotive Parts and Accessory Systems (APAS) R&D Centre
- SCOPX LABS
- USAI
- DANAM SYSTEMS
- DVC
- INAMCT
- Fraunhofer-Institut für Silicatforschung (Fraunhofer ISC)
- MR Shim
- Cellsystem
- Rittmannsperger Elektronik
- Sanying Motioncontrol Instruments
- KEB-RUS
- Rheinmetall Landsysteme
- «DOMINANTA-STAGE»
- CREO
- SHENZHEN SINOMV TECHNOLOGIES
- Evidence
- Shenzhen Rmotion Technology
- Moxa
- Kompex-T
- TOPTICA Projects
- South China University of Technology (SCUT)
  School of Automation Science & Engineering
- Cummins
- VMek Group (dba VMek Sorting Technology)
- CK Automation
- Shanghai Jiuwu Technology (Jowoiot)
- Fortna
- emtrion
- SAN-E TEC
- Anton Paar
- Sundance Multiprocessor Technology
- Ostbayerische Technische Hochschule Regensburg (OTH Regensburg)
  Fakultät Maschinenbau
  Regensburg Robotics Research Unit (RRRU)
- Hefei Eagle Automation Engineering Technology
- SCREEN ICT Software
- Helmut-Schmidt-Universität, Universität der Bundeswehr Hamburg
  Fakultät für Elektrotechnik (Faculty of Electrical Engineering)
  Professur für Elektrische Messtechnik (Electrical Measurement Engineering)
- Meisterschule für Handwerker
  Berufsbildende Schule in Kaiserslautern, Bezirksverband Pfalz
- Tesla
- Winding and More
- Joy Global (UK)
- Microtech Laboratory
- Flowsoft
- PI System
- Chiang Mai University
  Faculty of Engineering
  Department of Mechanical Engineering
  Motion and Control Laboratory
- ISI ITALIA
- Jet Propulsion Laboratory, California Institute of Technology
  (NASA Jet Propulsion Laboratory managed by California Institute of Technology)
- Sarens
- HORIBA STEC Korea
- ARP
- Robosoft
- European Spallation Source ERIC
  Integrated Control System Division (ICS)
- Shenzhen Encom Electric Technologies
- Kyoto Denkiki
- fos4X
- EQ GLOBAL
- Keysight Technologies Singapore (Sales)
- Shenzhen FOXON Automation Technology
- AVIC XINHANG YUBEI STEERING SYSYTEM (XINXIANG)
- NIHON SEIGYO
- "Innovation Center "Bourevestnik"
- Heinmade
- Shanghai AI-Smart Intelligent Technology
- EL Cluster Office (EL Klaszter Iroda)
- Suzhou Lingchen Acquisition Computer
- Robotek Otomasyon Teknolojileri
- Jiangsu Jinling Institute of Intelligent Manufacturing
- How
- SAMHYUN
- m-Bee
- Celeroton
- LS Energy Solutions
- Foshan Beyond Laser Technology (trade name HSG Laser)
- GD Thinkdrive Electrical Technology
- InnoSenT
- Solvine
- Greenlight Innovation
- LG Chem
- WARDJet
- Robot Motion Control
- Vanteon
- Wuxi Pneumatic Technical Research Institute
- TOSIL Systems
- Tektronz
- Intelligent Equipment (Suzhou) (LinkDriver)
- Liebherr-Werk Nenzing
- Corindus Vascular Robotics
- SLN Technologies
- Technische Universität Darmstadt
  Fachbereich Informatik
  Fachgebiet Simulation, Systemoptimierung und Robotik
- machineering
- CISWORKS
- A.B.Esse
- NEXCOM Shanghai
- NTN Technical Service
- Fundação Amazônica de Amparo à Pesquisa e Desenvolvimento Tecnológico Desembargador Paulo dos Anjos Feitoza (short FPF Tech)
- Kyland Technology
- ALPHA MOTION
- Hanwha Precision Machinery
- Lantz Teknik
- microGauge
- Shanghai Sinyo Electronics
- Changzhou Sino Sea Elecpower Thechnology
- Beijing Microhard Innovation Technology
- Coaters Paradise
- Marmatek Mühendislik Endüstriyel Test Ölçüm ve Otomasyon
- iMS Motion Solution (Johor)
- FORTH
- Saxion University of Applied Sciences
  Mechatronics Research Group
- GS Yuasa Technology
- CONEC Elektronische Bauelemente
- NANJING ELECTRIC CONTROL BRANCH
  (subsidiary of NARI Technology Co., Ltd.)
- Micro CleanRoom Technology
- Redler Technologies
- Nearfield Instruments
- Suzhou BBmotor Technology
- Boneng Transmission
- KOREA POLYTECHNIC UNIVERSITY
  Department of Mechatronics Engineering
- Balteau NDT
- Mixed Mode
- ATSENSE
- ebm-papst St. Georgen
- Elektrik Üretim
- ISRO Propulsion Complex (IPRC)
  Indian Space Research Organization (ISRO), Department of Space (DoS), Government of India
- ADL Analoge und Digitale Leistungselektronik
- Resilient Enterprise
- MECOS
- ACME Worldwide Enterprises
- Enlaica
- Fine Flow Services (Hitachi Metals Group)
- Vision Tech
- ZHONGSHAN MLTOR CNC TECHNOLOGY
- BIO-RAD
- Halıcı Elektronik & Telekomünikasyon (Halici)
- FRAMECAD
- Istanbul Technical University
  Faculty of Electrical and Electronics Engineering
  Control and Automation Engineering Department
- UNISEM
- Desird Tasarım Arge Uygulama Elektronik Destek Ithalat Ihracat
- Universität Augsburg
  Fakultät für angewandte Informatik
  Institut für Informatik
  Lehrstuhl Regelungstechnik in der Ingenieurinformatik
- HP Indigo
- TechnoPro
- HOJ Engineering and Sales Company
- Tecnomotion
- Smart Factory
- Microservo
- ifm software
- Creator
- Liyan Electric Industrial
- Dexterity
- Rozum Robotics
- Team14
- Mill-Max Mfg.
- Tohoku University
  New Industry Creation Hatchery Center (NICHe)
  Fluctuation Free Facility (FFF)
- plasmo Industrietechnik
- HATATECH
- CPM Integración de Sistemas Industriales
- Laser Mechanisms
- DEWE Japan
- Accelink Technology
- Schneider Electric (China)
- MIDDEX-ELECTRONIC
- REF Electronics
- Sonics & Materials
- Shenzhen Hongbai Technology Industrial
- UniSwarm
- DRB Fatec
- Logos01
- Geoservices Equipements
- Orbotech
- University of Oviedo
  Electrical, Electronic, Computer and Systems Engineering Department (DIEECS)
- Intelligence Technology of CEC
- CAScination
- AXIOS 3D Services
  (AXIOS 3D® Services)
- Estabili Tecnologia Desenvolvimento e Indústria de Equipamentos Mecatrônicos
- Chugoku Electric Manufacturing
- Helbling Technik
- Power Distribution
- TAIYO
- Surpass Industry
- MARS
- Wack Engineering
- Sigma Intégrale
- SHIKO
- KOKUSAI ELECTRIC
- Hangzhou Liwei Technology
- Conch Electronic
- Carlo Gavazzi (Malta)
- Elcis Encoder
- SonMicroSystem
- JEMA ENERGY
- KsNetwork
- NexCOBOT Taiwan
- Weissler Information Technology
- maxon precision motor India
- Ocean Insight
- Bloomy Controls
- v6e
- Presys Instrumentos e Sistemas
- Sens4
- Applied Dynamics International
- KELI MOTOR GROUP
- Zhejiang Dafeng Industry
- Shenzhen Lisan M&E
- TDK-Lambda
- Hunan Aicortech Intelligent Technology
- Beijing Careful Hydraulic Technology
- FOXIDE
- Rheinische Fachhochschule Köln
  Labor für Mechatronik
- C2P
- MACO-sys
- Montelec Montajes Electrónicos
- Peter Huber Kältemaschinenbau
- Theatrical Technological Systems
- Newfangled Solutions
- ECA ROBOTICS
- Komax Singapore
- Eule Industrial Robotics
- Nidec Research and Development Center, Taiwan
- Nuevas Técnicas de Automatización Industrial
  (NUTAI)
- LEONI CIA Cable Systems
- Neominds Software
- Guangzhou Liangdian Equipment Technology
- VAS HIGH TECHNOLOGY SOLUTION (VAS)
- Han's Robot Germany
- Technische Universität München
  Fakultät für Informatik
  Lehrstuhl für Robotik, Künstliche Intelligenz und Echtzeitsysteme (Informatik 6)
- KM DIGITECH
- HANGZHOU UWNTEK AUTOMATION SYSTEM
- B&W Fahrzeugentwicklung
- ALSAHER International Electronic System
- Dignitas Technologies
- Hitachi Industrial Products
- EAPOL - Automatyka Przemysłowa
- WUXI BOD TECHNOLOGY
- WELCON SYSTEMS
- Alpha Beta Technologies
- ProDSP Technologies
- KUKA Robotics China
- Dima Motor Tec.
- Inxpect
- Technische Universität Berlin
  Fakultät Verkehrs- und Maschinensysteme
  Institut für Maschinenkonstruktion und Systemtechnik (IMS)
  Fachgebiet Konstruktion von Maschinensystemen
- IGShare
- S.E.A. Datentechnik
- Hunan GreatWall Computer System
- KUBO Technologies
- MARZOLA EDM's CONCEPTS di Paolo Marzola
- EODIGITEK
- GAON SOLUTION
- JOOWON TECHNOLOGY
- Dekimo Turnhout
- ASAGE ROBOTS (Zhuhai)
- Zettaone Technologies India
- VONSCH
- Micro-IP
- Compucare India
- Sphere Fluidics
- Atel
- Zhejiang CHINT Electrics
- maku engineering
- Hunan Lianghu Electromechanical Technology
- Lavender CE
- King's College London
  Faculty of Life Sciences & Medicine
  School of Biomedical Engineering & Imaging Sciences

List continues on next page...

ORGANIZATION

New members (since last news) in order of membership application 2/3

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

- Dept. Surgical & Interventional Engineering
  Robotics and Vision in Medicine Lab (RViM)
- SPEXAL
- Kyoden
- ADG Automatisierung Dresden
- Universal Computer
- Shenzhen DH-Robotics Technology
- HBH Microwave
- Beijing DS FieldBus Technology
- HAAS Automation
- Shenzhen Sinexcel Electric
- JK Robots
- AROBOT
- ASC
- Lorenz Messtechnik
- HGG Profiling Equipment
- Lachmann & Rink
- KOREA MIKASA
- CLOUDDEWS
- Miltronik Steuer- und Leistungselektronik
- MEDICAL TECHNOLOGIES
- Optime Subsea
- RWTH Aachen
  Institute for Fluid Power Drives and Systems (ifas)
  (Institut für fluidtechnische Antriebe und Systeme)
- regenHU
- Protech Systems
- Puruvesi Automation
- Technische Hochschule Rosenheim
  Fakultät für Ingenieurwissenschaften
  Studiengang Mechatronik
- WANTS
- VMV-TECH
- PO OWEN
- CaTs³
- innofas
- Board Planning
- University of Porto
  Faculty of Engineering
  Department of Electrical and Computer Engineering
- Roboteq
- Kamp & Kötter
- Ingenieurbüro Dr. Tammo Winkler
- IMI
- Teledyne API
  (a business unit of Teledyne Instruments, Inc.)
- LJ Welding Automation
- IOTech Systems
- Finetech
- Smart Motion Control (SMMC)
- Suzhou DaFang Special Vehicle
- VDL ETG Technology & Development
- Flow Robotics
- ASiC Design
- Shenzhen ROBOTMETA Technology
- SmarAct
- Tianjin QWmind Technology
- QRT
- Hangzhou ZhongWei Control Technology
- Ningbo Sunny Intelligent Technology
- KEDE NUMERICAL CONTROL
- SHENZHEN OUYE INTELLIGENT TECHNOLOGY
- Delta Farm
- MUHA
- SYSTEM ARTWARE
- Fachhochschule Nordwestschweiz
  Hochschule für Technik
  Institut für Sensorik und Elektronik
- LETech
- SC3 Automation
- MTA
- i2A Systems
- R&D Company "Vector"
- ReeR
- Smart Buildings
- BETONMAC
- Shanghai Allinmodule Intelligence
- Pyramid Vacuum
- Wuxi Xinchang Electronic Technology
- Shenzhen Yoda Motion Control Technology
- Suresh Indu Lasers (SIL)
- Comet
- YXLON International
- Megmeet Germany
- SHYANG BAO
- Accutron
- Foshan Q&C Intelligent Technology
- NIPPON VALVE CONTROLS
- Schleißheimer Soft- und Hardwareentwicklung
- Automation of Things Europe
- NINGBO PIA AUTOMATION HOLDING
- YUNNAN KSEC INTELLIGENT EQUIPMENT
- Shanghai Fuxu Tech
- Hakuryo
- Avestron
- Shanghai HeTie Railway Technology Development
- SCIOPTA Systems
- Industrial Solutions Zuid-Oost
- FormFactor
- EPSITEC
- Universitat Politecnica de Valencia
  Instituto Universitario de Automática e Informática Industrial
- FarmWise Labs
- Wind&Sun Service Spain
- Litens Automotive Partnership
- Chen Yuan International
- ITK Dr. Kassen
- Beijing ZKCiT System Integration
- Arendar IT-Security
- MAPAL Fabrik für Präzisionswerkzeuge Dr. Kress
- Zhuhai LTsmart Technology
- INOVITA
- Shanghai Junqian Sensing Technology
- FoShan Syckin Intelligent Technology
- Wing Hong Mechanical
- Dematic
- LEIFERT INDUCTION
- IBS Precision Engineering
- Manufacturing Objects
- HOKURYO DENKO
- Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial (INEGI)
- Plus Electric
- LS Industrial Systems (Wuxi)
- Naruida Technology
- KYOWA ELECTRONICS
- HP Scitex
- Semiconductor Laser Development Lézertechnikai
- Hitachi Automotive Systems Americas
- NOVASEN
- Heinzinger electronic
- WHITEvoid
- Korea Testing Laboratory (KTL)
- WUHAN SHARE AUTOMATION TECHNOLOGY
- ATOMIC
- Automated Precision
- Industrielektronik i Oxelösund
- Beijing Smart China Energy Internet Research Institute (SCER)
- Zhejiang Eternal Automation Sci-Tec (E.MC)
- Hahn-Schickard-Gesellschaft für angewandte Forschung
- Shanghai Micro Electronics Equipment (Group) (SMEE)
- Fairfield University
  School of Engineering
- Shenzhen Siron Electrical
- Shanghai Chenzhu Instrument Co.,LTD
- MSVH
- Thermo Fisher Scientific
- Saab Sensis
- LSA
  Leischnig Schaltschrankbau Automatisierungstechnik
- American Controls & Automation
- ADDAT
- Alpha Project
- FEV Software and Testing Solutions (FEV STS)
- Faraday Motion Controls
- The Leland Stanford Junior University (Stanford University)
  School of Engineering
  Department of Computer Science
  Stanford Robotics Laboratory
- RE2
- WEETECH
- Ascale Enterprise
- Comando
- SHENZHEN JINGFENG MEDICAL TECHNOLOGY
  (EDGE MEDICAL ROBOTICS)
- Wenling Yuhai Electromechanical
- Vekta Automation
- FLEXIDO, fleksibilne robotske celice
- EMG Automation
- VI.BE.MAC
- Basler
- Laserax
- müller+krahmer
- Syneo
- AMETEK, Haydon Kerk Pittman Division
- 4CS-Laser
- IDEA
- Rob Surgical Systems
- Xiamen Aoztech Technology (AOZTECH)
- Wuxi Lingke Automation Technology
- IVEK
- Control Sistem
- Minimal Fab Promoting Organization
- University of Applied Sciences and Arts Western Switzerland (HES-SO)
  HES-SO University of Applied Sciences and Arts Western Switzerland – Fribourg
  School of Engineering and Architecture Fribourg (HEIA-FR)
  iPrint Institute=Institute for Printing
- PPHW PROLOC
- SpecKomplectPribor
- Shenzhen Instar Electromechanical Technology Development
- NISSEI ELECTRIC
- Lantronix
- CIM Worx International
- Lens Technology
- MP ONE TECH
- Shanghai Xiangshi Intelligent Technology
  (brand name Stone Motion Control)
- Videojet Technologies
- LithExx-Systems
- Amphenol Canada
- ZES ZIMMER Electronic Systems
- SACMI Beverage
- JT
- MBDA France
- Amphenol TCS, a Division of Amphenol Corporation
- Bharat Electronics
- Danfoss
- Ichor Systems
- Shanghai AYAN Industry System
- Wuhan Wisdom Automation Control Technology
- GZ Photonics Technology
- Toradex ->AG folgt
- Magnet-Schultz
- PONANT Technologies
- ADX Systems
- SANOVO TECHNOLOGY
- ABB Automation
- REYA ELECTRIC
  (Chinese Jiangsu Renyuan Electric)
- Sanitas EG
- Sun Fuel Technologies
- Nikon Systems
- IRISU
  (C. ILLIES)
- ACT Machinery
- Philips Healthcare (Suzhou)
  Shenyang Branch
- Zakład Produkcji Urządzeń Automatyki
  (ZPUA)
- Blu Technology di Ing Carlo Mauri
- AXYZ Automation
- AraCom IT Services
- Xi'an University of Science and Technology
  College of Safety Science and Engineering
- Highlight Tech
- UTAREX
- TOSHIBA MACHINE (CHENNAI)
- Elekta Beijing Medical Systems
- LG Electronics
- ICC Milandr
- Masterwork Machinery
- Inetronic
- KunShanTopA Intelligent Equipment (Kstopa)
- Xi'an Xing Qiu Tong Equipment Technology
- Daxta Equipamentos Eletrônicos Indústria e Comércio
- Weihai IDENCODER Electronic Technology
- British Columbia Institute of Technology
  School of Energy
  Department of Electrical and Computer Engineering Technology
  Electrical Engineering
- Norgren Manufacturing
- Shanghai JAKA Robotics
- Shanghai Chaifu Robot
- Akshaya Instruments
- Eureka Robotics
- Newport
- Xiamen Zhengai Technology (ANCSI)
- Baumann
- isel Germany
- AllMotion
- Shenzhen DOHHO Electric
- Brinkmann Electronic Berlin
- Günili Yazılım ve Mühendislik
- Maruyama Manufacturing (DBA Maruyama Chillers)
- Can Man
- Advenxus Solutions
- Korea Aerospace University (KAU)
  College of Engineering
  School of Electronics and Information Engineering
- Chengdu Tod Automation Control Technology
- Han's Laser (Singapore)
- Plustherm Point
- Shanghai YISU Information Technologies
- CB AUTOMATION division of Bettinelli F.lli.
- Staatliches Berufliches Schulzentrum Bamberg
  Fachschule für Mechtroniktechnik
- Ruhr-Universität Bochum
  Fakultät für Elektrotechnik und Informationstechnik
  Lehrstuhl für Allgemeine Elektrotechnik und Plasmatechnik (AEPT)
- PPT
- TAELIM SYSTEM
- Tokyo Information System
- NTN
- miCos Iberia
- Genesis Robotics and Motion Technologies Canada
- Nordson
- ESM Australia
- Steinbeis Embedded Systems Technologies
  (Steinbeis EST)
- Leomatic
- CertTech
- IMA Materialforschung und Materialforschung
  (Kurzform IMA Dresden)
- "Sital"
  (SITAL Scientific and Production Limited Liability Company)
- NAMOO
- MS Ultraschall Technologie
- AP Systems
- Robotics Plus
- EverMAX
- Myway Plus
- 1 Degree Freedom Robotics
- Shenzhen iManifold Robot Technology
- HEMERIA
- TIAN JIN SUNKE DIGITAL CONTROL TECHNOLOGY
- AXIMETRIX Automation
- Machine Prognostics
- Precision Technology (PTC)
- Robo Biz Core
- AL. Robot
- RS Elektroniksysteme
- Las Cumbres Observatory
- UNITEK Industrie Elektronik
- Sipartek di Marcello Ferri
- Impresstik Systems
- Robotech
- Bescom Global
- PI-Japan

List continues on next page...

ORGANIZATION

New members (since last news) in order of membership application 3/3

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

- Fachhochschule Technikum Wien
  Fakultät Industrial Engineering
  Department Industrial Engineering
- Brinkhaus
- Proteus Vietnam
- AccuteX Technologies
- WIBOND Informationssysteme
- CEB
- Industrial Control Service
- Test Research
- ADVES
- LEITNER
- NEWSUBSTANCE
- DanaDynamics
- K-one
- ESTUN AUTOMATION
- BAS
- Zume
- Southwestern Industries
  (TRAK Machine Tools)
- Roketsan
- Tri-Star Design
- i3 Product Development
- LEITNER
- Ningbo Taicen Electronic-Test Technology
- Federal State Institution "Scientific Research Institute for System Analysis of the Russian Academy of Sciences" (SRISA RAS)
- National Yunlin University of Science and Technology (YunTech)
  College of Engineering
  Department of Electrical Engineering
  Advanced Purpose Integrated Circuits and Systems Design Lab (APICS Lab)
- JingQi (Tianjin) Technology
- Hero Engineering
- TSK Prüfsysteme
- LINCO Food Systems
- Macquarie University
  Faculty of Science and Engineering
  School of Engineering
- TÜBİTAK BİLGEM
  National Research Institute of Electronics and Cryptology (UEKAE)
  Electro-optics and Laser Systems Laboratory
- TME Systems
- SC SEDO ELECTRIC
- Copperhead Controls
- Doyle Sails New Zealand
- MovekoTech
- WOT
- Shenzhen Xinlichuan Electric
- Eltech
- Onto Innovation
- EEP Elektro Elektronik Pranjic
- Kiwis Advanced Technologies
- Ultra-Span Technologies
- Shanghai United Imaging Healthcare
- Fujian Nebula Electronics
- Digital Information Technologies
- Siemens Gas and Power
- MSP, a division of TSI
- Sanwa Engineering
- Heliotis
- Hosiden
- Lug Healthcare Technology
- NOVUSS-Automation
- Desarrollo Soluciones Integrales Plus
- Ray-Links (Beijing) Technologies
- HD Associates
- Tech for Industry
- Techservo (Shenzhen)
- Karma Technology
- Strong Plus Technology
- Genesis Systems, IPG Photonics Company
- Shanghai Formal-Tech Information Technology
- ANHUI NIIC TECHNOLOGY
- FoodJet
- Huazhong University of Science & Technology (HUST)
  School of Mechanical Science & Engineering
- cellumation
- TISM
- Locomotec
- Accelerated Software Engineering
- Eaton
- Macnica Galaxy International
- FUKADEN
- Linus G Productions
- Techno Create
- University of Engineering and Technology, Lahore (UET Lahore)
  Al-Khwarizmi Institute of Computer Science (KICS)
  Human-Centered Robotics Lab
- Interroll Engineering
- MP (CTRL Engineering)
- Löhnert Elektronik
- TeMec Drive
- ROSEN Swiss
- HARAMTECH
- JL TECH
- PREZ-MET
- Nobleo Technology Holding
- East Japan Institute of Technology
- PCB Elektronik
- ECI Technology
- Northrop Grumman Sperry Marine, German Branch
  (Northrop Grumman Sperry Marine B.V., German Branch)
- Hand Held Products
  A Honeywell Company
- Engineered Arts
- Typhoon HIL
- Accelovant Technologies
- HAWE Hydraulik
- Ningbo Schleicher Technology Group
- mikrolab Entwicklungsgesellschaft für Elektroniksysteme
- WHION
- Nonlinear Solutions
- Element Machine Tools
- Zhengzhou University of Light Industry, School of Electrical and Information Engineering
- Bota Systems
- Beijing Tebeifu Electronics Technology
- University of South-Eastern Norway
  Faculty of Technology, Natural Sciences and Maritime Sciences
  Department of Microsystems
- SDPlex
- MIP robotics
- CYSCO
- Battelle Memorial Institute
- MIRSYSTEM
- NanJing KaiTong Automation Technology
- Novye tekhnologii XXI vek
- Hyundai Robotics
- Stryker
- Rheinmetall Norway
- KALEJA
- SHENZHEN SENMUN ELECTRICAL
- Falkenstein Mikrosysteme

Please find the full list of members online: www.ethercat.org/members

ORGANIZATION

Membership development

During the last years the ETG has constantly grown and, as of May 2020, counts 5825 members from 67 countries and 6 continents. ETG continues to be the world's largest fieldbus organization, and a truly global organization as well.

In more detail, about 460 new members have joined the EtherCAT Technology Group in the last 12 months! This is, of course, largely due to the quality of the EtherCAT technology itself, but also to a high extent to the comprehensive range of support and information available, which the members of the world's largest fieldbus user organization can access without restriction.

Besides its strong growth in Europe, there is further increase in new membership applications from Asia and America.