

# Data communication training courses

## KEMA Academy



Communication between information technology (IT) systems is increasing within distributed IT architectures. Standardized communication interfaces offer the energy and utility industry a cost-effective open solution for such communication.

KEMA's Protocol Competence and Test Center offers a comprehensive range of services, including technical consultancy, project management, testing, project implementation support, and training courses and workshops in the field of data communication. We have acquired detailed knowledge and expertise of the various protocols and have already given numerous training courses to both vendors and utilities. Trainees will benefit from our training courses due to our extensive knowledge, and simulators and analyzers will give participants a unique, hands-on experience.

For a current overview of our training program and to register, please visit [www.kema.com/academy](http://www.kema.com/academy).



### In-company & customized training courses

At the client's request KEMA can also provide in-company and customized training courses. The course can then, for example, deal with actual cases from your business operations, or future scenarios sketched out by you. We are flexible in this.

## Overview of data communication training courses

Course	Description	Subjects	Result	Target Group
DLMS/COSEM two-day training course English or Dutch language	Correct exchange of meter data is of major importance in the liberalized energy market. The data collection protocol DLMS/COSEM is an international standard that is very suitable for remote interrogation of energy meters.	<ul style="list-style-type: none"> <li>• Overview DLMS/COSEM</li> <li>• Device modeling</li> <li>• Protocol layers</li> <li>• Encoding</li> <li>• Testing and demonstration</li> <li>• Exercises</li> </ul>	After the course you will be familiar with the standard and will know how to implement and test your device.	Developers, consultants and telecom engineers at manufacturers and end-user utilities.
DNP3 two-day training course English or Dutch language	The DNP3 communication protocol is used for telecontrol purposes. This training course can focus on the functional aspects as well as on the details, such as technical issues and the bits and bytes of the protocol.	<ul style="list-style-type: none"> <li>• Open communication protocols</li> <li>• DNP protocol layers and objects</li> <li>• Comparison to IEC 870-5</li> <li>• Testing and demonstration</li> <li>• Exercises</li> </ul>	Participation will provide knowledge regarding the capabilities and benefits of and developments concerning DNP3.	Developers, consultants and telecom engineers at manufacturers and end-user utilities.
EDIG@S one-day training course Dutch language	The EDIG@S standard is a specially adapted version of EDIFact for use in the gas industry. It is used for gas allocation, nomination and reconciliation processes. This course is designed to update your knowledge of the standards and the telecom infrastructure.	<ul style="list-style-type: none"> <li>• EDIFact &amp; EDIG@S standards</li> <li>• VPN network</li> <li>• AS2 protocol</li> <li>• Allocation &amp; reconciliation messages</li> <li>• New developments</li> </ul>	After the course you will be able to identify the standards, read messages and recognize errors.	Developers, consultants, information analysts, manager and telecom engineers.
IEC 60870-5 two-day training course English or Dutch language	The IEC 60870-5 series communication protocols are used for telecontrol and protection purposes. This training course offers the opportunity to obtain up-to-date information on the companion standards series and hands-on analysis of protocol performance using our test tools.	<ul style="list-style-type: none"> <li>• Introduction to IEC 60870-5</li> <li>• Protocol &amp; companion standard series</li> <li>• IEC 60870-5-101/103/104 details</li> <li>• Exercises</li> <li>• Project approach &amp; practical experiences</li> </ul>	Participation will give you the knowledge you need regarding the capabilities and benefits of and developments concerning IEC 60870-5.	Developers, consultants and telecom engineers at manufacturers and end-user utilities.
IEC 61850 two-day training course English or Dutch language	The IEC 61850 series is the current international standard used for electrical grid data communication and electrical substation modeling. It's been designed for use over a high-speed network. This course is developed for manufacturers and utilities.	<ul style="list-style-type: none"> <li>• Introduction to IEC 61850</li> <li>• Overview substation automation</li> <li>• Data modeling, configuration, communication services</li> <li>• Exercises</li> <li>• New developments</li> </ul>	Participation will provide knowledge regarding the capabilities and benefits of and developments concerning IEC 61850.	Manufacturers: developers, consultants and telecom engineers. Utilities: managers, consultants and technical advisors.
PRIME one-day training course English, Spanish or Dutch language	PRIME is an OFDM based power line communication (PLC) technology, which specifies the lower layers of the data communication stack for automatic metering equipment. This one-day course covers the history and scope of PRIME, as well as an elaborate treatment of the technical details of the protocol.	<ul style="list-style-type: none"> <li>• Introduction to smart metering</li> <li>• PRIME overview</li> <li>• Physical layer, MAC layer and convergence layer</li> <li>• Conformance testing</li> <li>• Test result analysis</li> <li>• Questions &amp; discussion</li> </ul>	After the course you will have knowledge of the background and scope of PRIME and the various layers of the protocol. You will also have gained hands-on experience.	Engineers, developers and other staff at utilities and distributors.
TASE.2 two-day training course English or Dutch language	The TASE.2 / ICCP communication protocol is used for exchanging data between the control centers of system operators, power pools and security coordinators. This course provides up-to-date information on the protocol and hands-on analysis of protocol performance using the analyzer.	<ul style="list-style-type: none"> <li>• Overview of TASE.2 functionalities</li> <li>• UniCA analyzer</li> <li>• Exercises</li> <li>• Other user-requested issues</li> </ul>	After the course, you will be able to effectively configure, set up, and operate TASE.2 links.	All staff members involved in the configuration, testing and operation of TASE.2 telecommunication links.

**KEMA Academy**  
 Utrechtseweg 310  
 6812 AR Arnhem  
 The Netherlands  
 T +31 26 3 56 29 54  
[kema.academy@kema.com](mailto:kema.academy@kema.com)  
[www.kema.com/academy](http://www.kema.com/academy)