FESTO

Industry 4.0 glossary

Industry 4.0 and the Internet of Things (IoT) affect Original Equipment Manufacturers (OEM) and End Users alike. The physical and digital worlds are coming together, making factory automation more flexible, increasing energy efficiency, linking logistics processes more closely and optimising every phase throughout the value chain. As with all specialisms, it brings with it a whole new vocabulary of terms and abbreviations. This glossary provides a simple guide for some of the most used terms associated with automation and Industry 4.0.

Industry 4.0

Cloud

Integration

Tools

Shop floor

IoT
Internet of Things (IoT) is the broad term covering the connection of internet devices to cloud-based systems

4IR
Fourth industrial revolution

AMQP
Advanced Message Queuing Protocol for transfer of cloud-based data

API
Application Programming Interface allows web communities to share data and content

Big Data
Collection of data in the cloud from internet connected devices to optimise existing processes or create new business

AI
Artificial Intelligence

Cloud
Examples include Phoenix mGuard, IBM Watson, Microsoft Azure, SAP HANA, Siemens MindSphere, Rockwell FactoryTalk

IaaS
Infrastructure as a Service

MaaS
Manufacturing as a Service

SaaS
Software as a Service

RAMI
Reference Architecture Model for Industry, is a 3D model presenting levels and participants of I4.0

Admin Shell
Administration Shell contains digital information

CODESYS
Open programming software for factory automation supporting OPC-UA www.codesys.com

TSN
Time Sensitive Networking – protocol enabling deterministic real-time communication over Ethernet

ERP
Enterprise Resource Planning – IT systems for business process management

MES
Manufacturing Execution System – IT system controlling production in real time

OPC-UA
OPC Unified Architecture is at the core of Industry 4.0 architecture enabling secure yet open transmission of data www.opcfoundation.org

AutomationML
Standard enabling asset information to be embedded during the design process www.automationml.org

FMI
Functional Mock-up Interface – modelling standard to create Digital Twin

Digital Shadow
Digital image of assets for monitoring, optimisation and services

Digital Twin
Detailed virtual representation of an asset used in design and simulation

Cobot
Collaborative robot

RFID
Radio-frequency identification devices enable storage and transfer of information to read / write tags on assets

Zigbee
Open mesh wireless technology www.zigbee.org

Bluetooth
Short range wireless technology www.bluetooth.com

IO-Link
Point-to-point connection standard for sensors and actuators sits below I4.0 enabling parameterisation and error handling

CPS
Cyber-Physical System – confluence of digital and physical systems

AR
Augmented Reality

VR
Virtual Reality

M2M
Machine-to-Machine communication