Phoenix Contact

Phoenix Contact is a worldwide manufacturer of components, systems and solutions in the area of electrical engineering, electronics and automation. Today, the family-owned company employs 12,800 people worldwide. In 2012, the company achieved a total revenue of 1.59 billion euros. The corporate headquarters is located in Blomberg. Eight companies form part of the Phoenix Contact Group Germany. Eight production plants are located abroad. The international company group furthermore comprises approximately 50 own sales subsidiaries. The global presence is strengthened by 30 representations in Europe and overseas. Throughout Germany, Phoenix Contact is represented by a sales network of about 80 engineers.

Phoenix Contact produces with a high vertical range of manufacture all over the world; not only screws, plastic and metal parts, but also highly automated assembly machines are build inhouse.

The product range comprises components and system solutions for energy supply including wind and solar, device and machine engineering as well as control cabinet engineering. A diverse product range of modular terminal blocks and special-purpose terminals, printed circuit terminal blocks and plug connectors, cable connection technology and installation accessory offers innovative components. Electronic interfaces and power supplies, automation systems on the basis of Ethernet and Wireless, safety solutions for man, machine and data, surge protection systems as well as software programs and tools provide installers and operators of systems as well as device manufacturers with comprehensive systems. The automotive, renewable energy and infrastructure markets are supported with holistic solution concepts including engineering and training services and further service features according to their specific demands.

Product innovations and specific solutions for individual customer requests are developed at the locations in Germany, China and the United States. Numerous patents underline the fact that many developments from Phoenix Contact are unique in their own. In close cooperation with universities and science, future technologies like e-mobility and environmental technologies are explored and integrated into products, systems and solutions for the market.

www.phoenixcontact.de

01/13
Phoenix Contact

Name of the company  Phoenix Contact GmbH & Co. KG
Headquarters  32823 Blomberg, 32819 Bad Pyrmont
Founding year  1923 in Essen (North Rhine-Westphalia)
Turnover in 2011  1.52 billion euros
Chief Executive Officer  Klaus Eisert
Executive Vice Presidents  Roland Bent, Dr. Martin Heubeck, Prof. Dr. Gunther Olesch, Frank Stührenberg, Dr. Heinz Wesch
Number of employees  12,300 employees worldwide
Phoenix Contact Group Germany  Phoenix Contact Deutschland GmbH, Blomberg
Phoenix Contact Electronics GmbH, Bad Pyrmont
Phoenix Feinbau GmbH & Co KG, Luedenscheid
APtronic AG, Bad Sassendorf
Coninvers GmbH, Herrenberg
Innominate Security Technologies AG, Berlin
KW-Software GmbH, Lemgo
Sütron electronic GmbH, Filderstadt
Phoenix Contact Group international  Pressmaster AG, Älvdalen
Production locations  Harrisburg (USA), Nanjing (China), New Delhi (India),
Nowy Tomysl (Poland), Vasiliko (Greece), Sao Paulo (Brazil), Bursa (Turkey), Älvdalen (Sweden)
Sales subsidiaries  Argentina, Australia, Austria, Belgium, Brazil, Canada,
Chile, China, Czech Republic, Denmark, Finland,
France, Germany, Great Britain, Hungary, India,
Indonesia, Ireland, Israel, Italy, Japan, Lithuania,
Luxembourg, Malaysia, Mexico, Middle East,
Netherlands, New Zealand, Norway, Poland, Portugal,
Romania, Russia, Singapore, Slovakia, Spain, South
Africa, South Korea, Sweden, Switzerland, Taiwan,
Turkey, Ukraine, USA
Certifications  DIN EN ISO 9001
DIN EN ISO 14001
OHSAS 18001
IRIS
PAS 1037:2004
Welcome
PROFINET – for all Markets
PROFINET – Covering all Applications

- Process Automation
  - Oil & Gas & Energy Industries
  - Chemical and Medial Industries
  - Mines und Metal Industry
  - Food & Beverage
  - ...

- Factory Automation
  - Wind Turbines
  - Assembly Machine and Textile Industry
  - Automotive
  - Automotive-Conveying
  - Water / Wastewater and Recycling
  - Shipbuilding
  - Traffic and Railway
  - Buildings
  - Logistics, Transportation
  - ...

- Motion Control
  - Printing Machinery
  - Machines for Wood, Ceramics and Glass Production
  - Plastics
  - Packaging
  - ...

PROFINET for all markets
Flexible and Scalable Communication

All requirements for communication are getting covered for applications from Process Automation up to Motion Control.
Scalable Technology

PROFINET RT
for all markets and applications

PROFINET IRT
for motion control applications and synchronous IOs

Update times >= 250 µs
unsynchronized applications

Update times >=250 µs
synchronized applications

Same Look&Feel for the user (TCP/IP, diagnostics,…), both technologies can be combined

PROFINET for all markets
TCP/IP Communication deeply integrated

- Using IT Devices or PCs parallel to existing cyclic IO communication
- Each PROFINET Device accessible via TCP/IP-comunication (e.g. Web-Server or FTP)

- No additional infrastructure for other IP-devices
- Profinet devices accessible out of network management systems or remote controlling stations without additional costs.
PROFINET - Functions
Flexible Network Structure

- **ring structure**
- **line structure**
- **fiber optics**
- **star structure**

Flexible wiring for all kinds of media
The network topology follows the machine layout
PROFINET - Functions
Seamless into Subsystems

- proxy-concept for integration of all relevant fieldbus systems
  - PROFIBUS / INTERBUS
  - AS-I
  - CANopen / DEVICENET
  - FF
  - ...

Seamless integration of subsystems for simple migration into existing applications
PROFISAFE integrated

- PROFISAFE and standard devices in the same network
- PROFISAFE and standard IOs on the same device
- transparent solutions even with wireless communication

Single engineering and communication protocol reduces costs and supports more flexibility in safety applications
Energy efficiency by PROFIenergy

- Energy saving even in short breaks
- Reducing hardware cost through software
- High flexibility through application driven access

- Enables Total Cost of Ownership calculation
- Find new energy saving out of the application

PROFINET for all markets
Exactly error localization in topology view with error messages are reducing commissioning times.
PROFINET - Functions
System Redundancy Integrated

- redundancy in controllers

- media redundancy through „Media Redundancy Protocol“ (MRP)

- IO-redundancy

Vendor independency opens up new functions and increases availability
PROFINET – Functions in Spec 2.3
New Functions for Process Automation

Fieldbus integration

DCS
PROFIBUS PA
HART
PROFIBUS DI
PROFINET
DeviceNet
FF H1

Configuration in Run (CiR)

DCS
Remote I/O
Proxy

Time sync / time stamping

System Master Clock
(GPS, DCF77, …)
Controller 1
Controller 2
Controller 3
Device
Device
Backup Clock Master
Proxy

Scalable Redundancy

Redundant Controller
Primary
Backup
Device with redundant connectivity
Device with singular connectivity

New Features for process applications

PROFINET for all markets
PROFINET – an Open Standard

High number of
- Technology developers
  - Stacks,
  - Boards,
  - ASICS or
  - integration support
- Device manufactures
  - Controller,
  - Infrastructure,
  - IO, Drives,
  - …

Joint company activities for marketing, specifications and testing

Independence in device selection / long availability and compatibility
PROFINET Sales Figures

Sales figures counted by an notary including controllers and IO (no infrastructure and ASICS/Chip sets)

Each 5th device sold compared to Profibus is with PROFINET

PROFINET is market leader in the field of Ethernet-based communication and has the highest annual grows potential
PROFISAFE rising up as PROFINET in sales figures

© PNO
PHOENIX CONTACT
Product Overview

controllers and engineering tools

wired infrastructure

IO-Devices

proxys

plugging, cabling wall implementation

media converter

PROFINET for all markets
PROFINET Starterkit

- PROFINET STARTERKIT 3.0
- ILC 350 PN
- Bus coupler with IO-Inline devices
- SMCS-switch
- PC Worx with Quickstart
- Power supply, cable and memory card

convincing new customers with hard- and software
PROFINET IO controller portfolio

- wide range of PROFINET controllers in different housings

ILC 3xx family
- Profinet Controller/Device

RFC-family
- Profinet Controller/Device
- Redundancy-Controller
- Profisafe Controller

ILC 1xx family
- Profinet Device

SOFTPLC-family
- Profinet Controller/Device

performant controllers for the communication from the field up to the management level

PROFINET for all markets
Scalable Safety systems

- Safe Relays
- TRISafe
- SafetyBridge

PROFINET for all markets
PROFINET Device Proxys

- Modular mapping of INTERBUS or PROFIBUS in a PROFINET network
- Transparent diagnostics
- 4 Ethernet ports (RJ45) and integrated switch for building up a line topology
- Conformance Class B
- LLDP for topology recognition
- PROFINET update rate >= 1 ms

PROXY family for easy migration strategy
PROFINET IO-Devices

...for all I/O-systems of Phoenix Contact

- 2 Ethernet ports -> possible line structure with integrated switch
- PROFINET IO update-rates >= 1 ms
- LLDP-support for topology view
- Conformance Class B functionality

Existing I/O systems can be used further on
PROFINET Infrastructure Wired

Profinet RT capable Managed Switch families  
(MMS, SMCS, MCS, GHS)
- Profinet-with Conformance-Class B functionality  
  with integrated Profinet-Device Stack
- Topology recognition by LLDP
- Redundancy protocol RSTP and PROFInet IO-media redundancy (MRP)

IRT capable switch family
- With copper or fiber optics interfaces
- Profinet LWL diagnosis integrated

Infrastructure is integrated part of the solution

PROFINET for all markets
PROFINET Infrastructure Wireless

- Bluetooth and WLAN for PROFINET specified
- WLAN
  - higher data rates up to 300MBaud
  - 2.4 or 5 GHz
- Bluetooth
  - lower data rate
  - up to 7 devices
  - higher network density
  - parallel use in WLAN networks without problems
PROFINET / Ethernet field cabling

Complete product portfolio

- cables
- configured cables for field installation in IP20/67
- wall implementations
- connectors
- etc.

Various accessories for each solution
ITC Balta
Belgium

industry: water / wastewater
solution: water delivery and treatment for carpet production (1100qm/day)
products: ILC 350 controller, IO-stations

customer information
ITC Balta belongs to the world’s biggest manufacturers of tufted carpets made of polyamide

challenge
The aim was to design an automation system, which secures the delivery and the treatment of the wastewater of the carpet production.

customer benefit
Integration of PROFINET in an existing TCP/IP cabling concept
Wastewater Treatment
Warendorf/Germany

industry: water / wastewater
solution: automation of a system for sewage plant
products: ILC 350 controller, IO-stations

customer information
The disposal company of the city of Warendorf runs this sewage plant since 1957. The system is designed for waste water of 80,000 people. The itself produced methane runs several gas turbines which secures all heating energy for the whole system and up to 40% of the needed electrical energy.

challenge
integration into an existing system.

customer benefits
seamless communication from the field up to the management level
remote services
Wastewater Treatment
Warendorf/Germany

PROFINET for all markets
The Ulstein Group produces high level ships for industrial usage especially for delivery of off-shore platforms. Therefore an own automation concept was designed.

**Challenge:**
Beside controlling and navigation all internal processes to run the ship have to be served. Redundancy therefore is a very important topic for Ulstein.

**Customer benefit:**
- PROFINET offers an flexible cabling concept
- capability for redundancy in controllers and network of PROFINET
C. van Heezik
Netherlands

industry: warehouse & logistics

solution: transport system for pallets in a cooled warehouse (-23 °C)

products: 8 ILC 350 controllers

customer information:
C. van Heezik is a logistics company which runs a big cooled warehouse.

challenge:
The aim was to design an automation system for transportation of up to 1400 pallets per day under the condition of -23°C. Several distances had to be realized via wireless communication.

customer benetis:
- flexibel topology
- integration of wireless
- open TCP/IP-communication
Peterstaler Mineralquellen GmbH
Germany

industry: food & beverage, water treatment

solution: controlling and monitoring of a freshwater pipeline

products: Modular Managed Switches

customer information:
The Peterstaler Mineralquellen GmbH produces 180 Mio. bottles of mineral water a year and belongs therefore to the Top 20 of all german companys who run a mineral well.

challenge:
Building up a PROFINET network for monitoring and controlling the water flow through difficult environment in the german black forrest.

customer benefit:
- integration of fibre optic cabling for long distances
- web interface for remote control
- best performance in real-time
AUDI Ingolstadt
Germany

industry: Automotive

solution: body work construction for the AUDI A4

products: > 350 controllers, > 440 switches, > 30,000 PN-IO-items

customer information:
AUDI builds the A4 at two production sides in Ingolstadt and Neckersulm. The A4 belongs to the most sold cars of AUDI.

challenge:
Designing a complete automation solution for the body work construction of the A4.

customer benefit:
- performant communication characteristics
- safety-integration
- integration of fibre optic
- flexible cabling
- parallel TCP/IP-communication
- performant fieldbus-integration
- best diagnostics
- investment security

PROFINET for all markets
PROFINET – for all markets

Thank you!

BU Control Systems | Marketing
PHOENIX CONTACT Electronics